OFFICIAL PROGRAM

TRANSACTIONS

AMERICAN ACADEMY
of
OPHTHALMOLOGY
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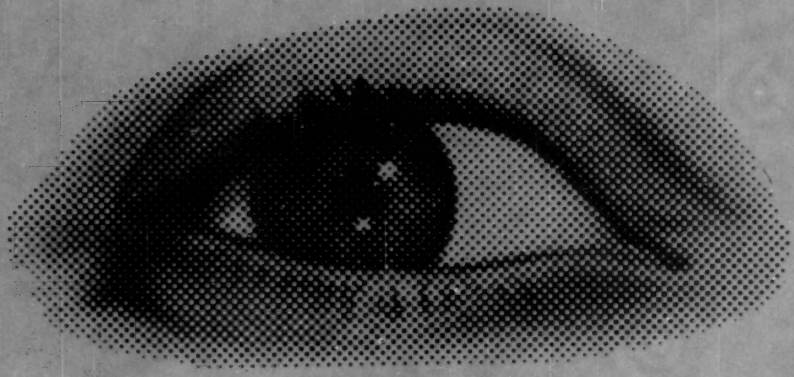
OTOLARYNGOLOGY

JULY-AUGUST
1957

Volume 61 No. 4

ANNUAL MEETING, OCTOBER 13-18, 1957, CHICAGO



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VOLUME 61 JULY - AUGUST, 1957 NUMBER 4

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1. *Cecil's Textbook of Medicine*, 7th ed., 1947, p. 1287.
2. *Ibid.*, p. 1598.
3. *Am. J. Ophth.* 42:771, 1956.
4. *Am. J. Digest. Dis.* 22:5, 1955.
5. *Med. Times* 84:741, 1956.

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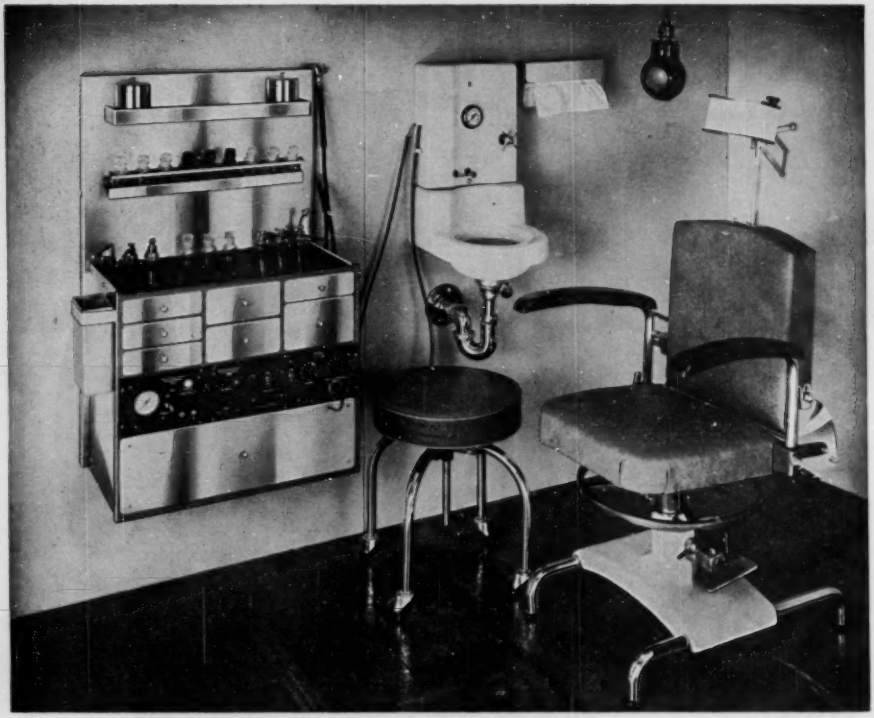

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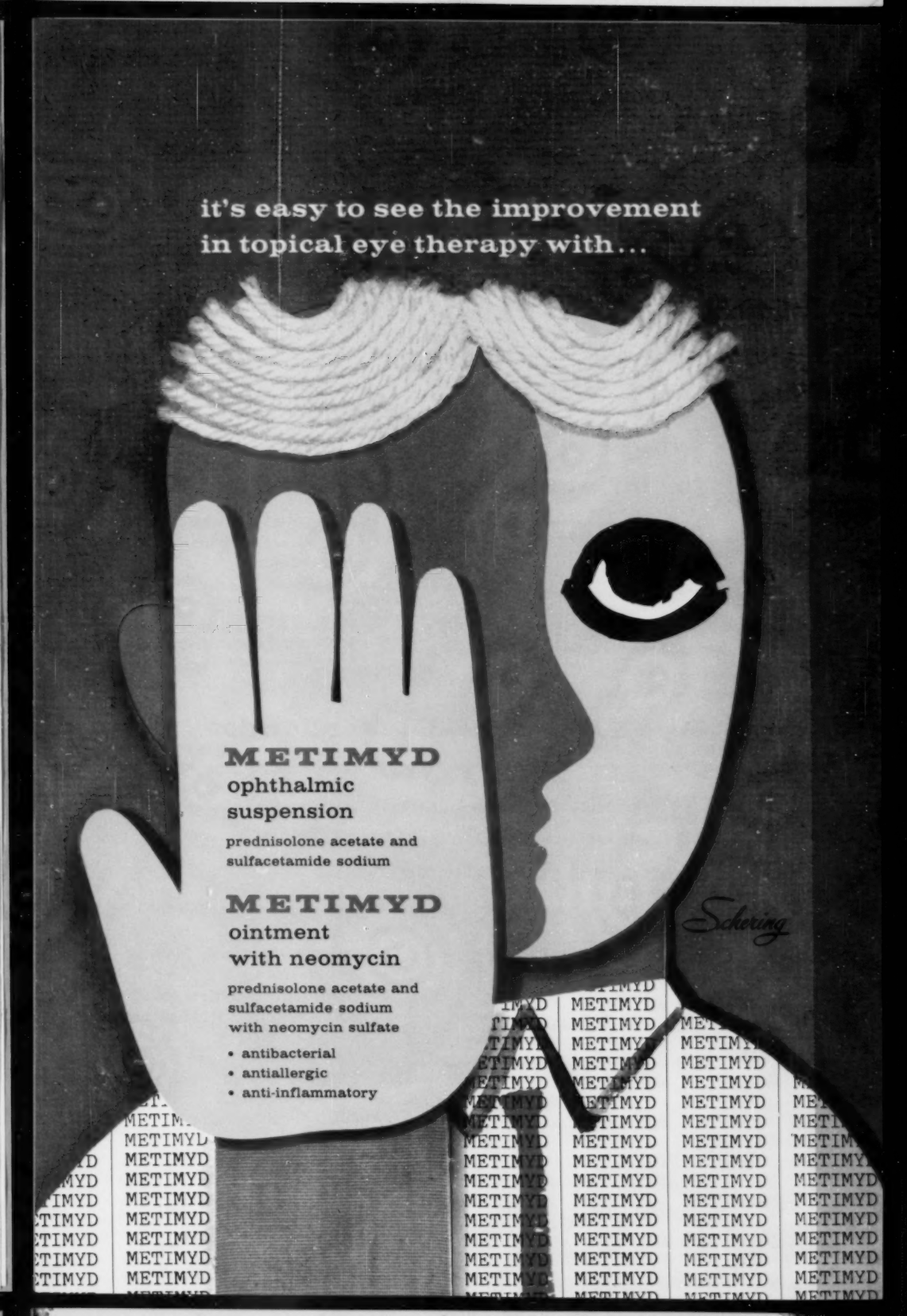
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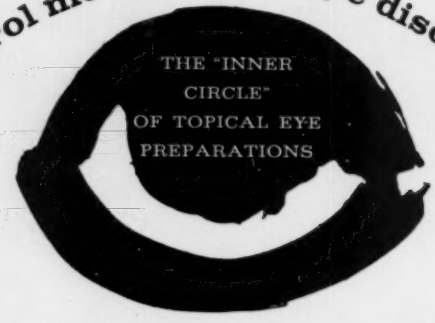

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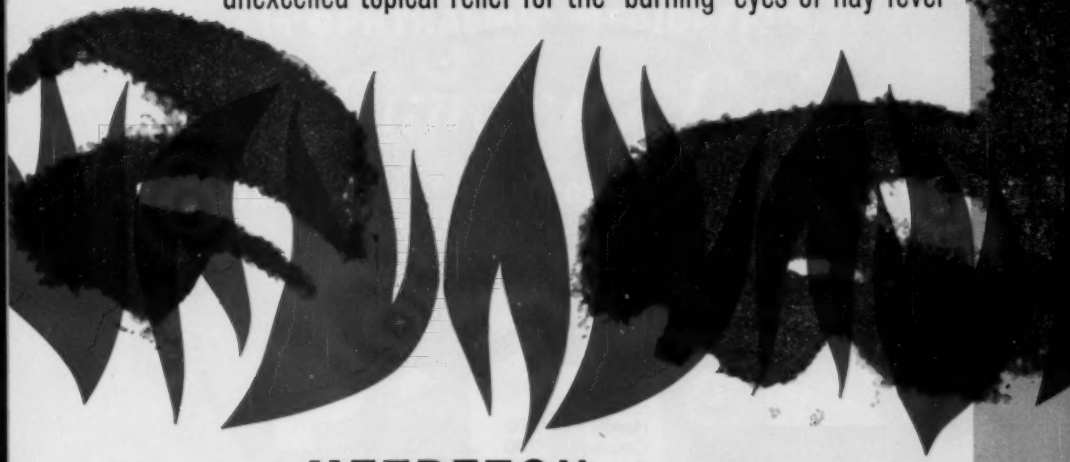

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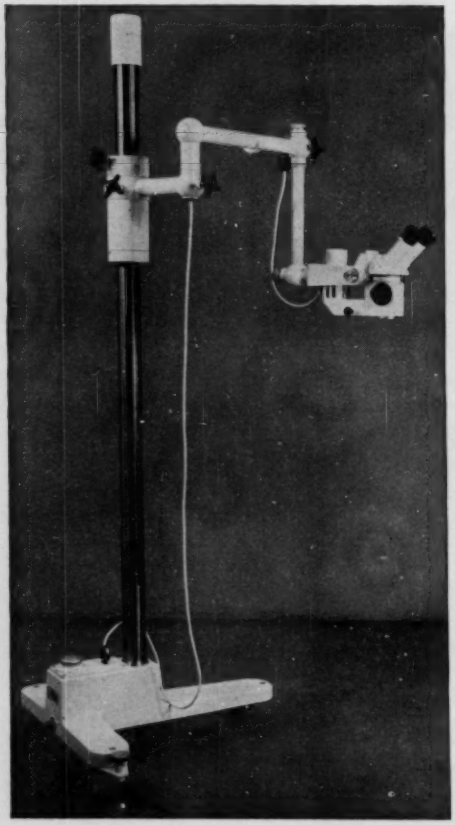

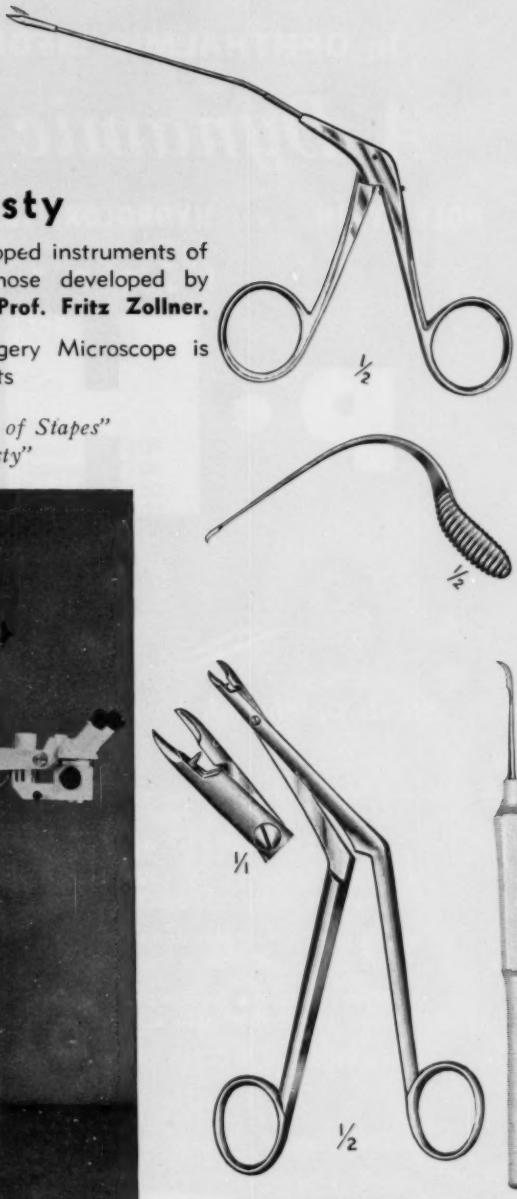

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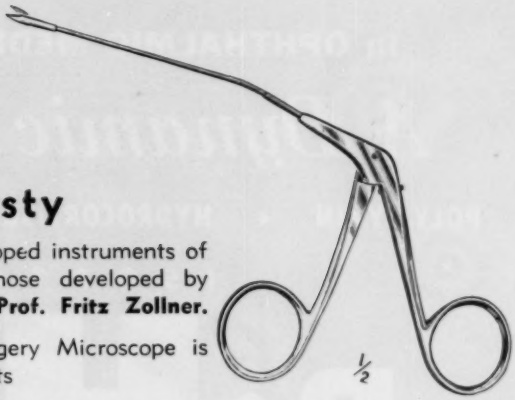

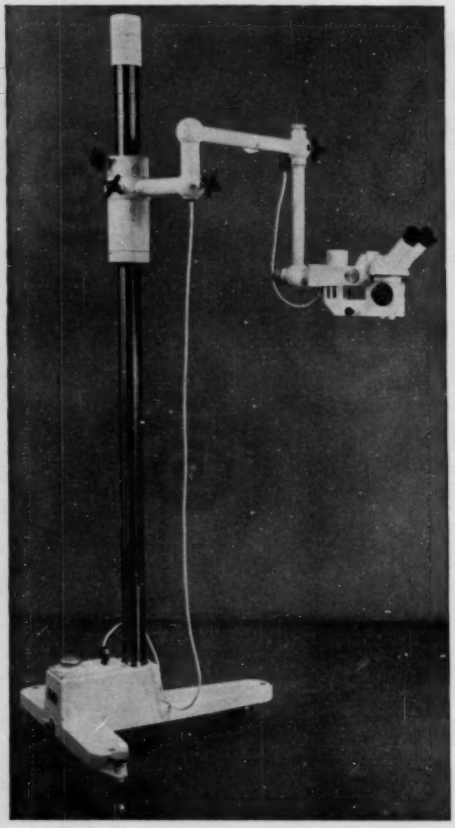

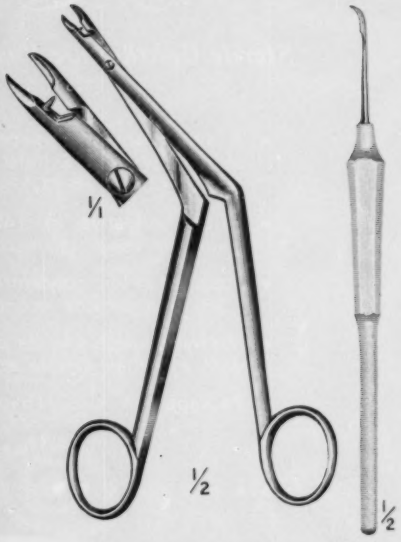

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1. Riddle, A.C., Jr.: Adrenosem Salicylate: A Systemic Hemostat, Oral Surg., Oral Med., Oral Path. 6:617 (June, 1955).

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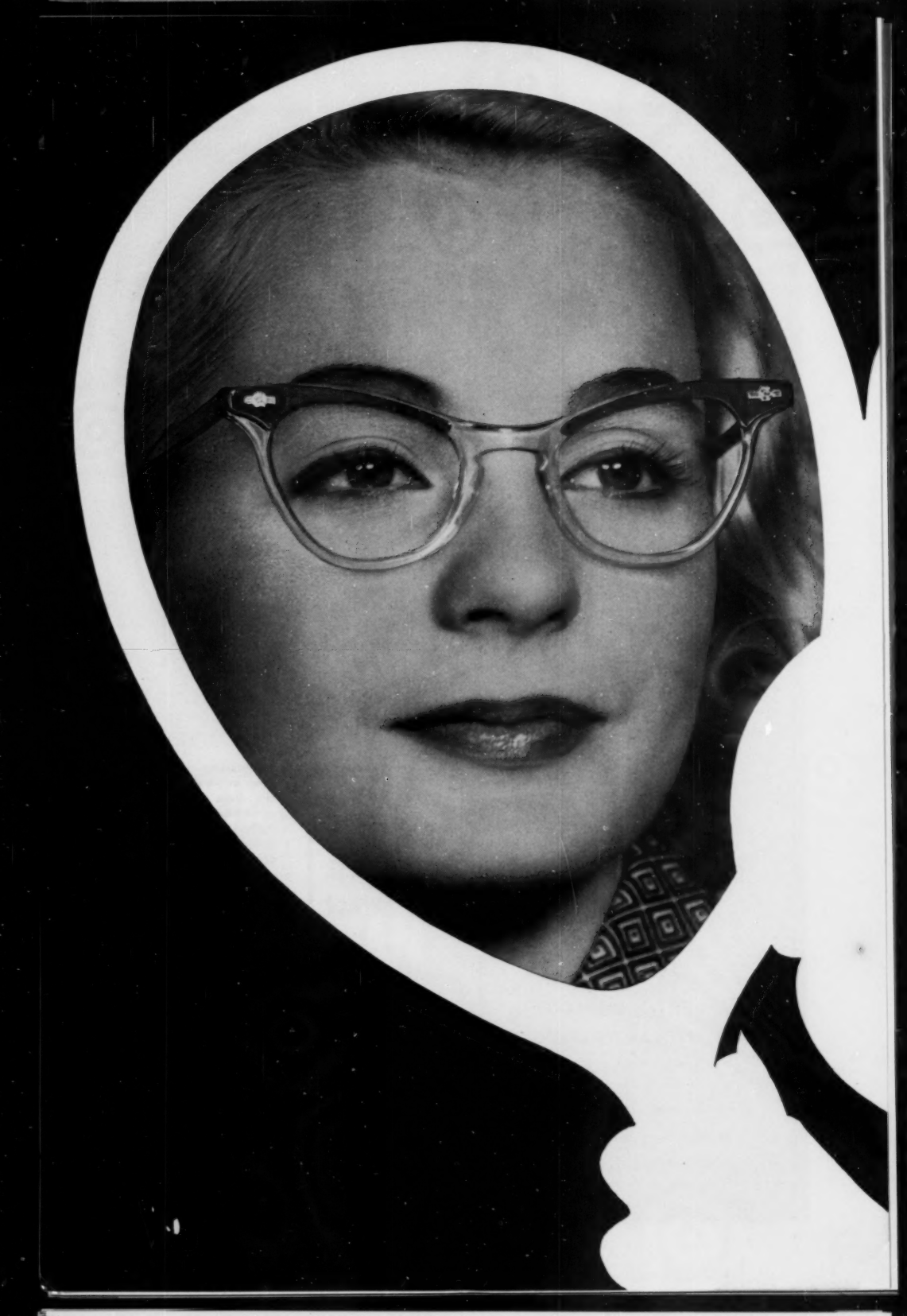

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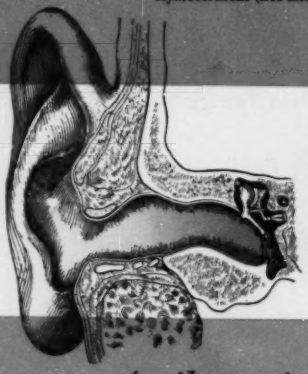

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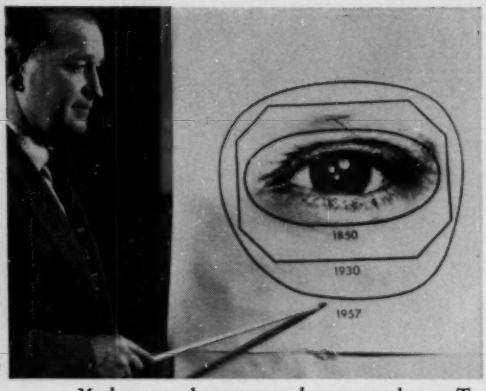

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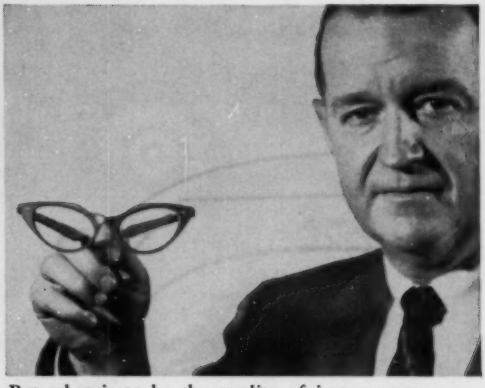

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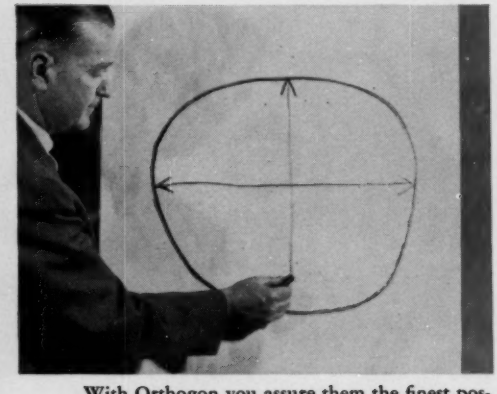

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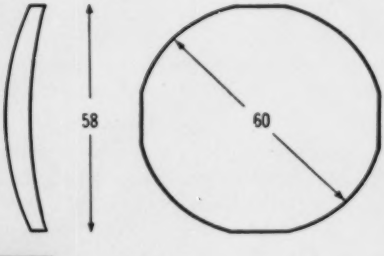

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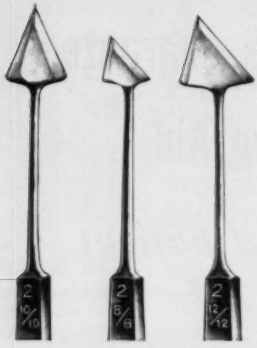

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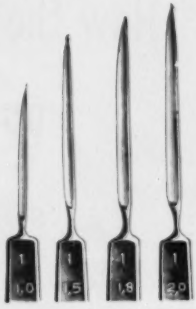

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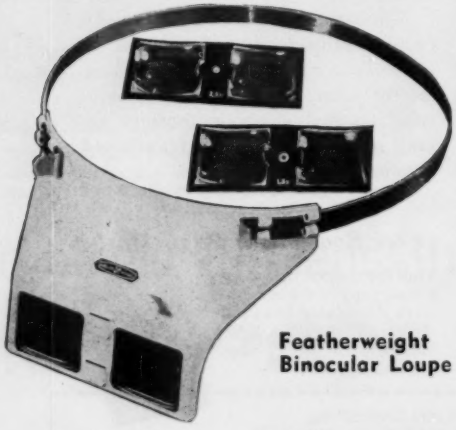

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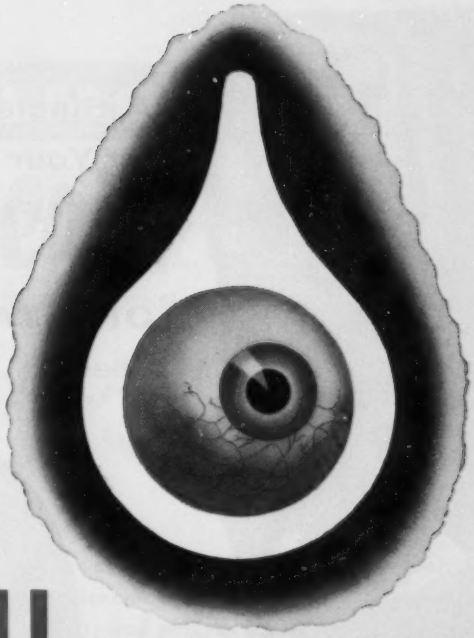

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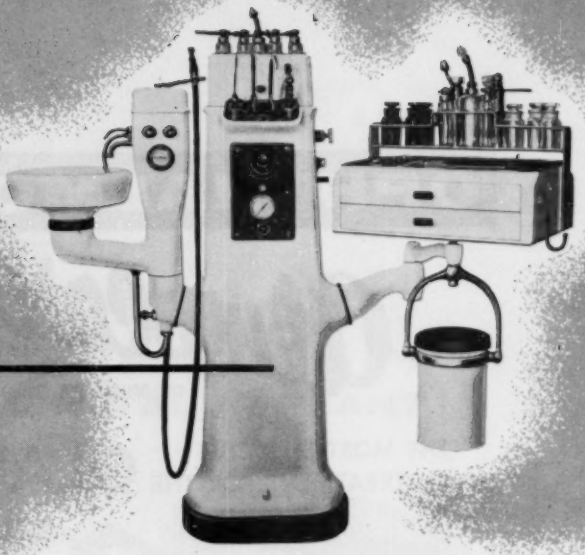

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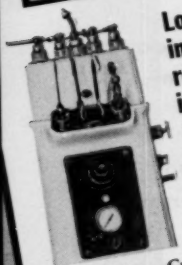

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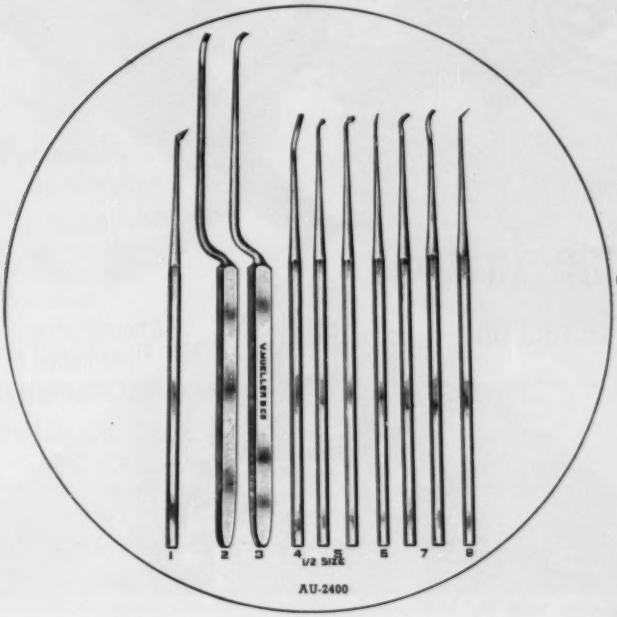

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1. Rasgorshek, R. H. and McIntire, W. C.: Am. J. Ophth. 40:34 (July) 1955. • 2. Ehrlich, L. H.: N. Y. State J. Med. 53:3015 (Dec. 15) 1953. • 3. Gettes, B. C.: A.M.A. Arch. Ophth. 51:467 (April) 1954. 4. Council on Pharmacy and Chemistry: J.A.M.A. 158:1523 (Aug. 27) 1955. • 5. Stoizer, I. H.: Am. J. Ophth. 36:110 (Jan.) 1953.

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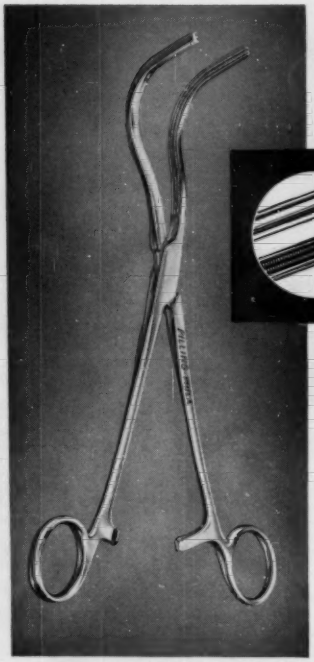

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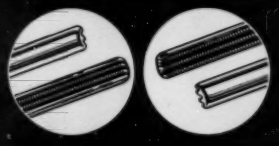

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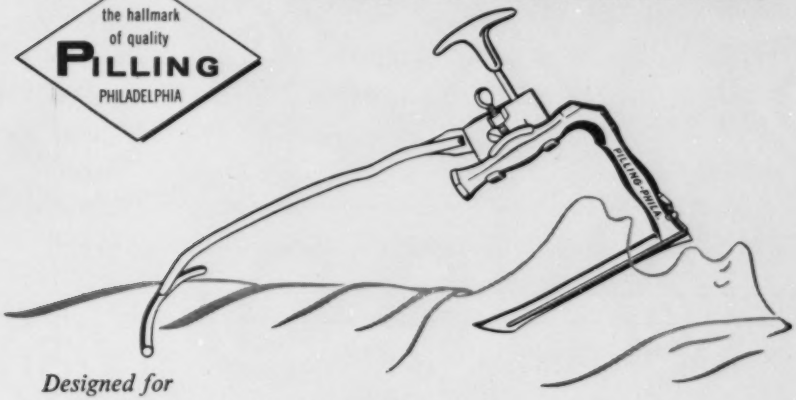

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Reference—R. B. Lewy: Acta Oto-Laryngologica, Vol. 46, Fasc. 1, 1956

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THE TREATMENT OF RETINOBLASTOMA BY RADIATION AND TRIETHYLENE MELAMINE

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and

GEORGE A. HYMAN, M.D.

BY INVITATION

and

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NEW YORK, NEW YORK

SINCE 1953 we have attempted to evaluate a possible additive or synergistic effect of nitrogen mustard analogues and radiation in the treatment of retinoblastoma. In 1955 we gave a preliminary report of our results with the use of triethylene melamine (TEM).[7]

That this group may be effective in the treatment of retinoblastoma is attested by the fact (1) that members of the group have proved lethal to a related tumor elsewhere in the body—the neuroblastoma; (2) that when TEM was used alone in the treatment of four eyes harboring a retinoblastoma, we noted a rapid regression of the tumor (in all four instances the tumor by the use of TEM alone showed a striking clinical regression even though no cure could have been anticipated); (3) that the experimental work of Gillette and Bodenstein[2] indicates the specific effect of the drugs on the proliferating retinal cells.

In addition, the possibility of synergism between X radiation and TEM has convincing theoretical and experimental bases through the research of Goldberg and Schoenbach,[3] and of Haddow[4,5] and others of his group. The work by these authors indicates that the effect of these agents is apparently at different points on the chromosomes of the dividing nucleus.

In this present communication we wish to present (1) a study of two comparable groups of eyes treated by X radiation alone and by X radiation and oral TEM; and (2) our experience to date with this combination treatment, using TEM orally, intramuscularly, and intra-arterially. In both groups the cases are consecutive except for the fact that the following cases were rejected: (a) Hopeless cases in which no vision would be possible even if the tumor could be arrested. In general, the eyes treated by the combined method had somewhat more advanced lesions. (b) Cases which had not received the combination treatment concurrently—those which had had radiation first, and later after recurrent growth were given the combination treatment; and those which received a nitrogen mustard analogue first, and later

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after recurrent growth received the combination treatment. (c) Cases of residual tumor in the optic nerve after enucleation. (d) Cases of recurrent orbital growth after enucleation.

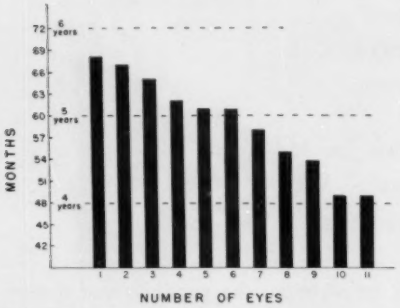

FIG. 1—The time which has elapsed since treatment by X radiation was started in 11 cases which were successfully treated. All show a time lapse between four and six years.

We have selected 22 eyes treated consecutively by X radiation alone, just prior to the advent of the use of X radiation combined with TEM, because they were the cases treated with doses of X radiation less than the original amount which we advocated, i.e., 8000 r $\times$ 2 in air. These 22 eyes were treated with doses ranging from 6800 r $\times$ 2 in air to 4800 r $\times$ 2 in air. The cure rate with vision for these 22 eyes was 50 per cent. Of the 50 per cent which were failures, 8 required enucleation because the tumor was not under control and 3 had no vision, because of vitreous hemorrhages, although the tumor was thought to be arrested. The time which has elapsed since the treatment was started on the 11 eyes treated successfully is shown in figure 1, and the vision which these patients obtained is shown in figure 2. Figure 3 demonstrates the size of the lesion in 8 eyes treated successfully, and figure 4, the size of the lesion in 4 eyes treated unsuccessfully by X radiation alone.

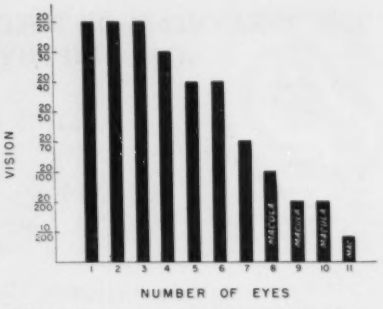

FIG. 2—The vision of the 11 patients with disease arrested by x-ray therapy. In 4 patients with the poorest vision there was macular involvement by the tumor.

A total of 57 cases of retinoblastoma has been treated since January 1953 by a combination of X radiation and TEM. For comparison with the 22 eyes treated consecutively by X radiation alone, we

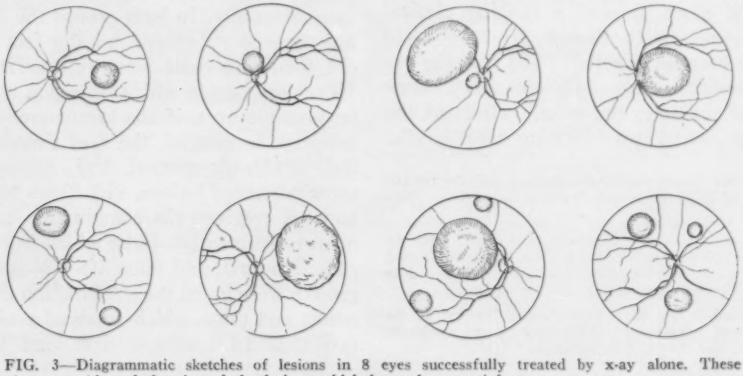

FIG. 3—Diagrammatic sketches of lesions in 8 eyes successfully treated by x-ay alone. These give some idea of the size of the lesions which have shown satisfactory response.

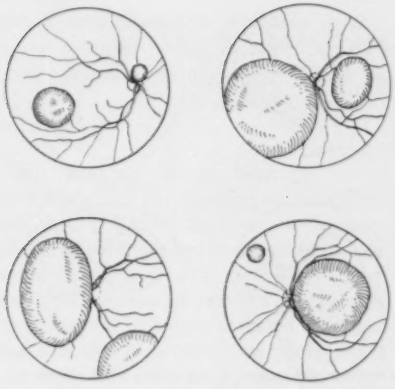

FIG. 4—Sketches of the lesions in 4 eyes unsuccessfully treated by x-ray alone.

have selected the 20 eyes included in our first report, as these have the longest follow-up. The x-ray dose to all these eyes, given according to the method we have previously described, was 2400 r × 2 in air—a dose one half of the lowest dose in the x-ray series.

In the fasting state, all patients were given triethylene melamine orally with two grams of sodium bicarbonate, according to the method of Gellhorn,[1] and twenty-four hours later ocular radiotherapy was instituted. The second dose of TEM usually coincided with the last

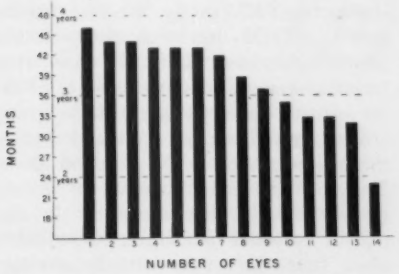

FIG. 5—The time since treatment by x-ray and TEM was started in the 14 cases treated successfully (six more months have elapsed since this paper was prepared and the status of all patients remains the same). Here the ordinate begins at fifteen months, while in the comparable graph (fig. 1) the ordinate begins at thirty-nine months.

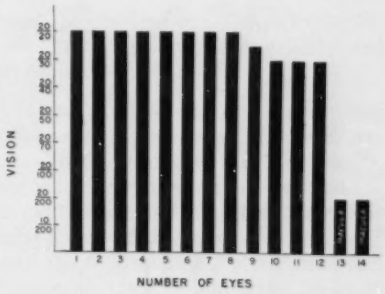

FIG. 6—The vision of the 14 patients with disease arrested by x-ray and TEM. In the two with the poorest vision there was macular involvement by the tumor.

radiotherapy treatment, and the third dose was given after radiotherapy was completed but within the time period of its continued direct effect. The optimal timing of these two agents is a matter of further study at present.

To date, of the 20 eyes so treated, 70 per cent are cured and have some vision. There have been no vitreous hemorrhages. Figure 5 shows the amount of time which has elapsed since treatment was started in the 14 successful cases. The elapsed time is, of course, greater in the cases treated by X radiation than in those treated by X radiation and TEM. Figure 6 gives the vision of these patients. Figure 7 demonstrates the size of the lesion in 8 successfully treated eyes; and figure 8, the size of the lesion in 4 eyes treated unsuccessfully by the combination method.

It is of interest that 44 per cent of the 42 eyes concerned in this report showed two or more tumor foci. This frequency of multicentric lesions is a significant deterring factor in the treatment of retinoblastoma employing radon plaques sutured to the external scleral surface opposite the site of the tumor.

The difference between the group treated by X radiation alone and the one treated by the combination method is

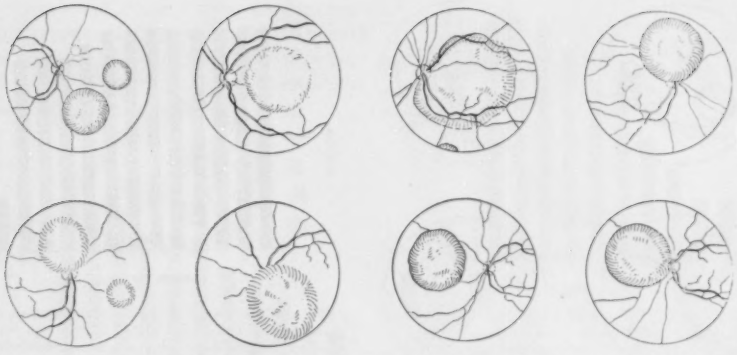

FIG. 7—Diagrammatic sketches of lesions in 8 eyes successfully treated by x-ray and TEM. These give some idea of the size of the lesions which have responded.

chiefly that more eyes were salvaged with vision when the combined treatment was used. The difference, though, in the results between the cases treated by the two methods is more manifest if we consider the previous series of 148 children treated by X radiation prior to the group reported here. Of the 79 surviving and adequately documented patients, the cure rate with vision was 36 per cent, but 12 per cent had very limited vision (10/200 to hand movements), leaving only 24 per cent with useful vision. In general, the vision in this group was far below that in the group treated by the combined method. Also, in the combined group there are no cosmetic deformities as sequelae of the radiation. Furthermore, it may be significant that 18 per cent of the children in the combined-treatment group have died within a forty-month period, and 35 per cent in the group treated with x-ray alone have died. Cataract formation has not been a problem in either group.

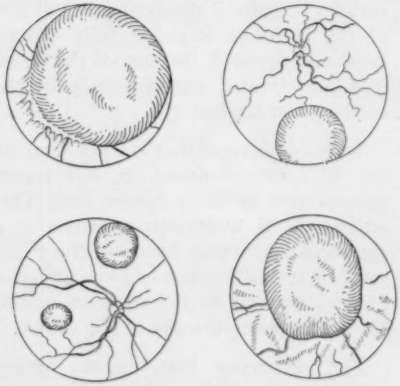

FIG. 8—Sketches of the lesions in 4 eyes unsuccessfully treated by the combined treatment.

An analysis of our results from the standpoint of size of the lesion indicates a definite preference for the combined treatment over roentgen therapy alone. What will be said here on this point refers entirely to the combined treatment employing TEM orally. We feel that the use of TEM intramuscularly would have highlighted the difference even more. In general, the average size of the lesions was distinctly larger in the group treated by the combined method than in the group treated by X radiation alone. Treatment by either method of lesions greater than 8 disc diameters in size usually resulted in failure. X radiation alone failed in 4 eyes with lesions less than 3.5 disc diameters, but the combined treatment did not fail in any eye with a lesion of this size. A failure by the combined method was rare (only one case in six) when the lesion measured less

than 5 disc diameters. Failures in this group occurred in five eyes receiving X radiation alone. Multicentricity of foci did not apparently affect the cure rate in either group.

We wish to correct here the statement made in a previous report that a tumor observed in transparent media magnified sixteen times by the ophthalmoscope would allow one in a reasonably short time (six months) to predict whether or not the tumor had been arrested. We find that although in general this statement is true, in three of the eyes presumed cured we could not detect active growth following treatment until after a long period had elapsed. The periods were two years and eleven months, one year and ten months, and one year and six months, respectively. These are the longest periods which have elapsed between the completion of treatment and detection of active growth. All but one of the cases charted in figure 5 are now either at or beyond this longest period, indicating that we are justified in reporting these as supposed cures.

The 20 cases reported above received combined therapy employing oral TEM. The oral form of TEM has been discarded because emesis and irregularity of absorption interfere with accuracy of dosage, especially when leukopenia or thrombopenia does not develop. Currently, a new parenteral preparation of TEM* is being employed. It is administered intramuscularly in a dosage of approximately 0.1 mg. per kilogram, the patient being in a fasting state. Using a 2-cc. sterile tuberculin syringe throughout, 5 milliliters of normal saline solution is added to a 5-mg. bottle of TEM, which has been kept refrigerated. The solution is mixed immediately before administration. The exact amount is withdrawn (equivalent in milliliters to milligrams of drug) and promptly injected intramuscularly.

Temperatures are recorded every two hours following treatment. The child receives nothing orally for four hours, then water or ginger ale is permitted for the next four hours, and then other clear fluids for the third four-hour period. If these are well tolerated, a full fluid diet is allowed. After an additional 24 to 36 hours after treatment, if the patient is afebrile and not vomiting, a light diet is instituted. A moderate leukopenia and/or a thrombopenic effect was obtained in almost all cases treated intramuscularly, whereas there were many instances in which mild or no marrow depression was observed following administration of TEM orally.

Because of the variation in individual sensitivity, subsequent therapy in each patient is based on the initial hematologic response as well as on the weight. The effective intramuscular dose was approximately one-third to one-half the oral dose, as has been previously reported by Karnofsky.[6] The total dose employed has been empirically determined, with an average course in infants of 15 mg. of the drug administered orally or 7.5 to 10 mg. intramuscularly extended over a period of six to twelve months. These children apparently tolerate much larger doses than adults, since the recommended parenteral dose of triethylene melamine in adults is only 6 to 12 mg.

To date we have treated 8 patients with TEM intramuscularly combined with X radiation, and all of these patients appear at the present time to have tumor arrest. The number of patients treated and the elapsed time are insufficient to warrant a further report on this group at this time.

In an attempt to increase many-fold the dose of the drug reaching the tumor, in 9 cases TEM, in doses of 0.1 mg. per

*Supplied by Dr. James Ruegsegger, Lederle Laboratories, Division of American Cyanamid Corporation, Pearl River, New York.

kilogram, has been instilled under direct operative vision into the internal carotid artery on the side corresponding to the eye to be treated. Patients were selected for administration of the drug by this route (a) when the tumor was found to be very large and enucleation was refused by the parents; (b) when tumor cells were observed histologically at the cut end of the optic nerve at the time of enucleation; and (c) when orbital recurrence of the tumor was present following an earlier enucleation.

In addition to TEM, radiation was given to the eye or orbit, and if necessary in cases of recurrent growth, orbital exenteration was performed. In this group of 9 patients, 2 appear to have the tumor arrested and vision preserved, 3 have died, and 4 apparently still have active disease. Prior to 1953 we would have despaired of helping these children by roentgen therapy alone. The number of patients treated and the elapsed time are insufficient to warrant a further report on this experimental group.

CONCLUSIONS

1. The treatment of retinoblastoma by a combination of X radiation and triethylene melamine is more effective than by X radiation alone.

2. Triethylene melamine employed intramuscularly is more effective than it is employed orally.

3. The indications at present are that the use of TEM intra-arterially is most effective, and we are now probing the possibilities in advanced intraocular retinoblastoma as well as in cases of residual and recurrent retinoblastoma in the orbit.

4. The lower doses of X radiation possible in the combined treatment have led to no vitreous hemorrhages—a complication which plagued us with the doses employed when the treatment was by X radiation alone.

5. The visual results are better with the combined treatment than with X radiation alone.

6. With the combined treatment, the cosmetic deformities consequent to the radiation are negligible.

REFERENCES

1. Gellhorn, A.; Kligerman, M. M., and Jaffe, I.: Triethylene melamine in clinical cancer chemotherapy, Am. J. Med., 13:428-431 (Oct.) 1952.
2. Gillette, Roy, and Bodenstein, Dietrich: Specific developmental inhibitions produced in amphibian embryos by a nitrogen mustard compound, J. Exper. Zool., 103:1-32 (Oct.) 1946.
3. Goldberg, B., and Schoenbach, E. B.: The biological and antineoplastic properties of three triazine derivatives, Cancer, 4:1125-1139 (Sept.) 1951.
4. Haddow, A.: Chemical and Genetic Mechanisms of Carcinogenesis, in F. Hamburger and W. H. Fishman: The Physiopathology of Cancer, New York, Hoeber-Harper, 1953, p. 441.
5. ———: Our present understanding of the cancer cell, Practitioner, 174:249-258 (March) 1955.
6. Karnofsky, D. A., et al.: Triethylene melamine in the treatment of neoplastic disease: a compound with nitrogen-mustard-like activity suitable for oral and intravenous use, A.M.A. Arch. Int. Med., 87: 477-516 (April) 1951.
7. Reese, Algernon B., et al.: Treatment of retinoblastoma by radiation and triethylenemelamine, A.M.A. Arch. Ophth., 53: 505-513 (April) 1955.

DISCUSSION

WILLIAM F. HUGHES, M.D., Wilmette, Ill.: It is a tribute to the work of Dr. Reese and his colleagues that they have been able to study and treat 57 children with retinoblastoma during the past four years, using a combination of TEM and roentgen rays. Although these tumors respond to large doses of x-ray alone, the poor late visual results are indicated by the authors' figures, in which only 24 per cent of 79 surviving patients had vision of better than 10/200 following a dose of 8000 r × 2 in air. In addition, cosmetic deformities of the bony development and late development of malignant lesions secondary to the intensive radiation have been observed by all of us. The

visual prognosis seems to be significantly improved by a reduction in x-ray dosage to a level from 4800 to 6800 r × 2 in air, for 50 per cent had vision of 10/200 or better after an average follow-up period of five years. The addition of TEM orally with even less X radiation, namely 2400 r × 2 in air, resulted in 70 per cent cures with vision over a shorter average follow-up period of a little more than three years. This figure is not significantly different from that for those treated with the medium x-ray doses alone, and the apparent difference will probably become even less as time goes on. The authors must also have some doubts as to the efficacy of TEM when they "plan to run a series of cases alternating between the combined treatment and X radiation alone, using 2400 r × 2 as the dose." This rather extreme reduction in x-ray dosage from the original 16,000 r in air to 4800 r in air makes one concerned as to whether the dosage is going from too much to too little. Unfortunately, the correct dosage has to be determined largely by trial and error. I would like to ask the author whether the 8 eyes in the X-radiation group which were enucleated because of residual tumor had received the lower dosage of around 10,000 r or the higher dosage of 13,600 r. Also, is there any evidence that the unsuccessful cases showed a more highly differentiated neuroepitheliomatous type of tumor, which might be more radioresistant than an embryonal type of retinoblastoma? Stallard in 1954 thought that a retinoblastoma was more radiosensitive than the more highly differentiated neuroepithelioma, and that a tumor dose from radon of 2500 r to 3500 r at the summit of the neoplasm was generally effective. Adding to the difficulties of selecting the proper dose of radiation, I have found it difficult to decide during treatment whether the tumor is responding properly. One hesitates to discontinue treatment unless the tumor is showing rapid involution and calcification, because once the course of radiation is interrupted for a few weeks, it cannot be started again with the idea of obtaining cumulative effects. In fact, a second course of X radiation probably requires a higher dosage than the original course because relatively radioresistant cells persist. On the other hand, isn't it true that further involution of the tumor may occur for a month or two after the cessation of treatment? In view of all this doubt about the true radiosensitivity of a particular case of retinoblastoma, wouldn't it be wise to use the maximum dose which the eye will tolerate? According to Cibis, Brown, and others, the rods and the external layers of the retina could be destroyed in adult mammals, including monkeys, with doses as low as 2000 r. The minimal lethal dose for cones and bipolar cells was thought to be between 10,000 and 30,000 r. The tolerance of the human retina must be greater than this, because seeing eyes have resulted following irradiation approaching 10,000 r. Have Dr. Reese and his group related the dosage of radiation to the changes in the remaining retina in eyes enucleated for residual retinoblastoma? Dr. Richard Buenger, a radiologist at Presbyterian Hospital in Chicago, informs me that, in general, doses exceeding 5000 r on most tissues result in late radiation changes due in large part to vascular effects. It would seem, therefore, that a tumor dose between 4000 and 5000 r should not be exceeded.

Although nitrogen mustard and TEM have many radiomimetic actions, the combined toxicity of TEM and radiation is not strictly additive, according to Goodman and Gilman, and probably each attacks different portions of functions of the nucleus. Therefore, to get the best possible synergistic effect the treatments should be given simultaneously. Dr. Reese and his colleagues have reported the exciting new technique of injection of TEM into the internal carotid artery, obviously with the purpose of bringing this highly reactive substance into immediate contact with the retinoblastoma before it has had time to be destroyed or to react with other tissues; e.g., in gastric acidity, in tissue surrounding intramusclar injection, lymphoid tissue, and bone marrow. Together with such a powerful chemical blow to the tumor, the simultaneous use of roentgen rays should produce the best synergistic results. If the concept is carried out completely, is there any need to continue the TEM therapy many months after the cessation of X radiation unless there is evidence of residual tumor and further radiation appears undesirable?

I am happy that the authors have discussed the toxic effects of TEM, which is held in great respect by most clinicians. In one of our cases, a 9-month-old child was given 2.5 mg. of TEM orally, and the white count dropped steadily to 1000 during the next six days, so a blood transfusion was given the following day. The white count was still 1850 nine days after the transfusion, then gradually rose to normal one week later. Another 9-month-old child received 0.5 mg. of TEM intramuscularly, and the white count dropped from 13,250 to 3700 in seven days, but by ten days had returned to 5250.

I would like to apologize to the authors for

asking them so many questions. From their tremendous experience with retinoblastomas, perhaps we can obtain some of the answers.

DR. REESE: Thank you very much, Dr. Hughes.

I don't think that you should apologize for asking so many questions, but I do think you should for asking us so many that we cannot answer.

You ask whether, in the group treated by x-ray, the 8 eyes which were enucleated because of active growth had received the lower doses of x-ray given in this series. Some received the lower and some the higher; there was no consistency.

You also want to know whether there is any evidence that the unsuccessful cases have shown a more highly differentiated neuroepitheliomatous type of tumor, which might be more radioresistant than the embryonal type of retinoblastoma. In general I think it can be said that the more primitive the cell, the more sensitive it is to chemotherapy and probably to x-ray.

Another question was whether further involution of the tumor may occur for a month or two after the cessation of treatment. I think it is highly probable that this does occur.

Again thank you, Dr. Hughes.

Dr. Hyman will answer the questions pertaining to chemotherapy.

DR. HYMAN: There are two questions directed to me which I will answer.

The first is about the prolongation of TEM therapy beyond the course of the radiotherapy. When we first tried the combination we got to a point where we were afraid to stop the courses of TEM. I think that Dr. Hughes feels somewhat the same way at times when he treats with radiotherapy. As we progressed and as we became more experienced, we gradually cut down on the number of doses.

At the present time, patients generally receive their first treatment just prior to the start of radiotherapy, as we mentioned, and the second treatment approximately at the end of the radiotherapy. A third treatment is given probably within the time when radiotherapy is still having some involutional effect on the tumor. Then a fourth treatment follows in about six or eight weeks. We don't know whether these late treatments are important. We will learn only over a period of time by cutting down on the number of treatments.

Finally, we do intend to produce a depression of the white count. You mentioned a case in which the count fell from 13,000 to 3000, which would be what I would call an ideal response because it indicates that an adequate dose was administered. Although this modest degree of depression is induced, no toxic effect really occurs.

The first case you mentioned probably represents the kind of situation that you can get with the use of any drug; that is, the types of response form something like a bell-shaped curve. The marrow in some rare instances is much more sensitive; they therefore respond with much more depression than do the vast majority. These are the children for whom you have to be on the lookout.

THE PRODUCTION OF HETEROCHROMIA AND GLAUCOMA BY DIFFUSE MALIGNANT MELANOMA OF THE IRIS

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and

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BY INVITATION

WASHINGTON, D. C.

THE heterochromia with which we are concerned in this investigation is increased iris pigmentation of a glaucomatous eye; consequently Fuchs's heterochromic cyclitis and depigmentation following inflammation, trauma, and neurological disorders are not considered. The following are also excluded: congenital heterochromia, hematogenous pigmentation due to massive hyphema, and siderotic discoloration following removal of an intraocular ferrous foreign body.

We wish to demonstrate that diffuse infiltration of the iris tissue by a malignant melanoma can also produce a type of heterochromia, and that this syndrome should not be regarded as a rarity or a curiosity. Our study was conceived at one of the monthly clinicopathologic conferences at the Episcopal Eye, Ear, and Throat Hospital, at which the first two cases of this series were presented and discussed.

Case 1

AFIP Accession 752014. A white man, 60 years of age, had been under observation since 1937 for occasional refractions. The corrected vision in each eye had always been 20/15. Both irises were light blue. In June 1954 he returned with the complaint that vision in the left eye had been blurry for a few months. The vision could not be improved beyond 20/100; the visual field was markedly contracted; the optic nerve head showed advanced glaucomatous excavation, and the tension was elevated to 46.0 mm. Hg (Schiøtz). During the next few months the tension remained elevated and could not be reduced by any one of a variety of miotics or by Diamox®. Surgical treatment was recommended, but the patient demurred. Ten months later it was obvious that the iris had become gradually but increasingly pigmented until its color was in definite contrast to the blue of the other eye. A diffuse malignant melanoma of the iris was suspected. This clinical diagnosis was endorsed by a consultant; the eye was enucleated, and the opinion was confirmed by histopathologic study.

The iris was diffusely infiltrated by moderately pigmented melanoma cells (fig. 1). Throughout the pupillary half of the iris these were predominantly spindle-shaped cells with large ovoid nuclei and a moderate amount of cytoplasm. At the iris root and in the chamber angle there were large epithelioid cells containing even larger nuclei and more prominent nucleoli. The tumor cells not only invaded the iris stroma but exhibited a loss of cohesiveness and were being shed into the anterior chamber (fig. 2). There were only occasional narrow peripheral anterior synechias, but a layer of tumor cells coated the anterior chamber angle and the inner surface of the trabeculae. This represented both surface extension from the iris root and an accumulation of cells carried by aqueous flow after being shed from the anterior surface of the iris. Early glaucomatous cupping of the optic disc was present.

Case 2

AFIP Accession 260993. An 81-year-old white man had been informed in 1948 that

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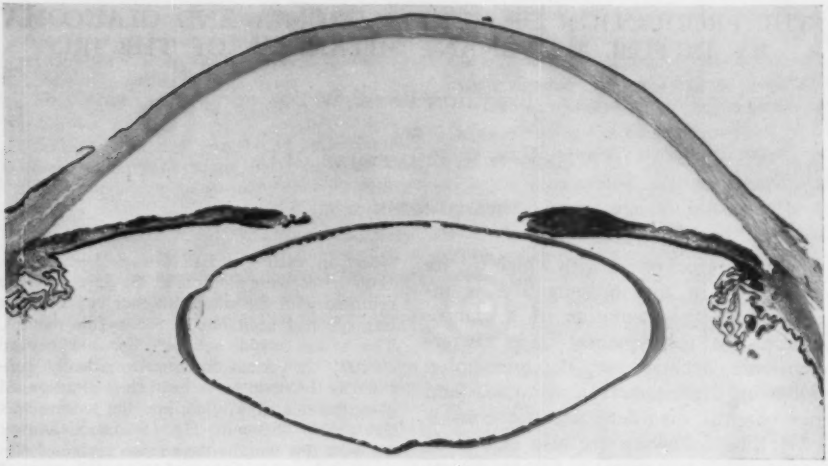

FIG. 1—Case 1, AFIP Acc. 752014. Diffuse infiltration of the iris by a moderately pigmented malignant melanoma. The tumor extends into the chamber angle and coats the inner surface of the corneoscleral trabeculae but does not significantly infiltrate the ciliary body. (Hematoxylin and eosin; × 12)

FIG. 2—Case 1, AFIP Acc. 752014. Epithelioid and plump spindle B varieties of malignant melanoma cells infiltrate the iris stroma, extend over the surface of the chamber angle, and are being shed into the aqueous from the anterior surface of the iris. A layer of tumor cells (arrows) covers the corneoscleral trabeculae up to and beyond the termination of Descemet's membrane (Schwalbe's line). (Hematoxylin and eosin; × 50)

he had primary glaucoma in the right eye. At that time it was noted that the iris, which originally had been blue, had gradually turned brown during the past fifteen years. Examination showed an advanced glaucomatous excavation of the optic nerve head; the visual field was contracted. Vision corrected to 20/30. Miotics did not lower the elevated intraocular tension and a trephination was performed. The iris tissue excised at the opera-

tion in 1948 revealed mild diffuse hyperpigmentation of the melanocytes lining its anterior surface but no evidence of malignant melanoma (fig. 3). Following that operation the intraocular tension remained elevated and there was progressive loss of vision. Six years later the patient had several attacks of acute congestive glaucoma and enucleation was advised. The surgeon performed an evisceration based on the Mules' operation. An alert house officer salvaged a few fragments of tissue for pathologic study, and to the surprise of all concerned, a section of the iris was found to be packed with large pigmented epithelioid cells which lacked cohesiveness and spilled out profusely into the anterior chamber (fig. 4). Unfortunately, no tissue containing the anterior chamber angle was available for histopathologic study, but it was assumed that the melanoma cells being shed from the iris were responsible for obstruction to the aqueous outflow.

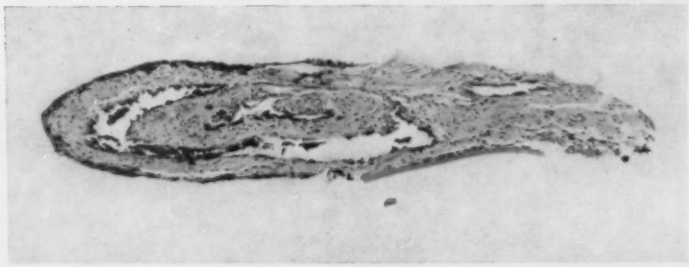

FIG. 3—Case 2, AFIP Acc. 260993. Iris specimen for biopsy obtained six years before evisceration. Although the patient had heterochromia at that time, biopsy revealed only mild diffuse hyperpigmentation of the melanocytes lining the anterior iris surface and no evidence of a malignant melanoma. (Hematoxylin and eosin; × 60)

Stimulated by these two personal experiences, we made a survey of the literature on diffuse melanomas of the iris. This type of tumor and its consequences are described and illustrated very clearly by Reese,[1] but he gives no indication of its frequency. Richardson,[2] who reported two cases in 1948, stated that only ten similar case reports had been published previously. We suspected that these tumors were not so rare and decided to collect similar material from the Registry of Ophthalmic Pathology of the Armed Forces Institute of Pathology and from various ophthalmic pathology laboratories throughout the country. To date we have assembled about sixty cases which will form the basis of a more comprehensive pathologic report at a later date.

In reviewing the material it became apparent that the correct clinical diagnosis was seldom made until late in the course of the disease. By that time one or more operative procedures for glaucoma had been carried out and often the diagnosis was unsuspected until the eye was enucleated and examined microscopically. It is our belief that the reasons for these errors in diagnosis are (a) the low index of suspicion of this particular variety of melanoma, (b) the failure to comprehend the mechanism by which heterochromia and glaucoma are related, and (c) the centering of attention on the signs and symptoms of glaucoma with disregard of telltale color changes in the iris. The following two cases are representative:

Case 3

AFIP Accession 308014. A 45-year-old man had noticed an area of discoloration in the iris of his left eye for a number of years, and for five months he had been aware of loss of vision. On examination, a large amount of "plastic exudate" was seen on the iris and lens; the tension was elevated, but the vision was still 20/40. Two operations were performed to reduce the tension, but without success. A clinical diagnosis of tuberculous iritis with secondary glaucoma was made and enucleation was performed.

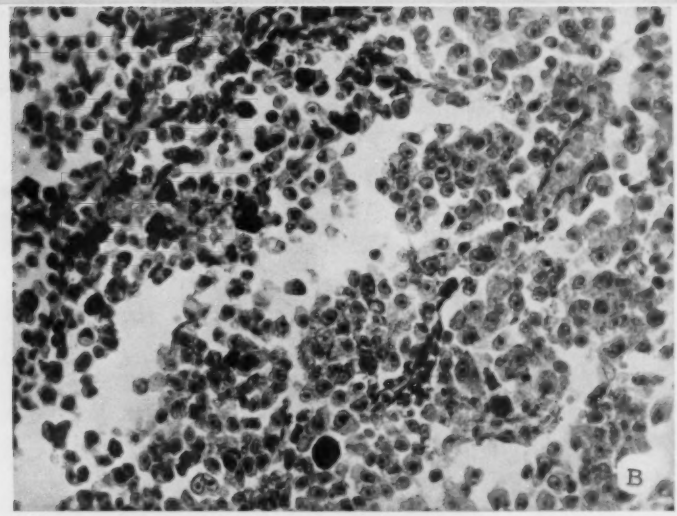

FIG. 4—Case 2, AFIP Acc. 260993. (A) Fragments of cornea and iris obtained when the globe was eviscerated. The iris is diffusely infiltrated by moderately pigmented tumor cells. (Hematoxylin and eosin; × 10) (B) This malignant melanoma is purely of the epithelioid cell variety. The loss of cellular cohesion is obvious and tumor cells are being shed from the iris surface. (Hematoxylin and eosin; × 285)

Microscopic examination of the enucleated eye revealed the "exudate" on the iris to be very lightly pigmented melanoma cells being shed from the infiltrating iris tumor (fig. 5). The anterior chamber angle was partly closed by anterior synechias, but where the angle was open it was filled with desquamated tumor cells (fig. 6).

Case 4

AFIP Accession 35190. A 45-year-old white man complained of pain in the left eye and of seeing halos around lights. The intraocular tension was elevated and there was marked excavation of the disc. A basal iridectomy was performed, but the eye remained hard and painful, with a steamy cornea and a bulging wound. The diagnosis was acute exacerbation of chronic glaucoma, and the eye was enucleated. Pathologic studies revealed a diffuse lightly pigmented malignant melanoma of the iris and adjacent ciliary body. At the site of iridectomy there was a cystoid corneal scar lined by tumor cells (fig. 7). On the opposite side a nodular projection of the iris tumor filled the chamber angle.

In both of the preceding cases attention was centered upon the elevated intraocular pressure, which remained so in spite of surgical interference, and enucleation was necessitated by this uncontrolled tension. In neither of these was

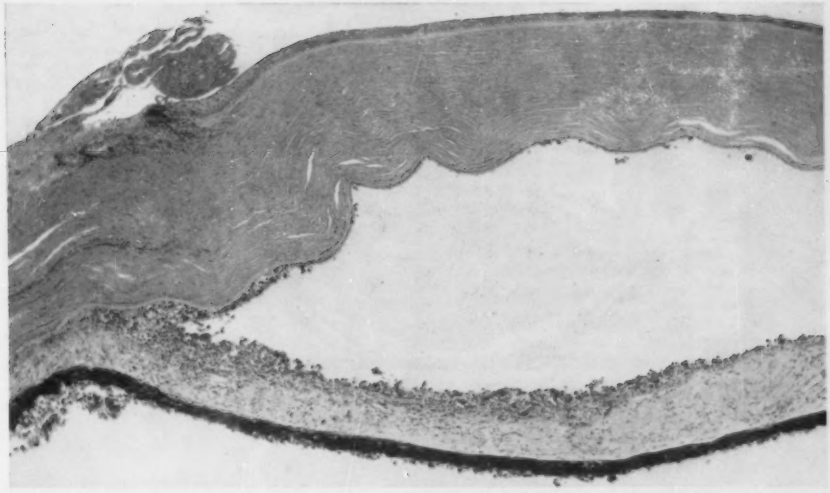

FIG. 5—Case 3, AFIP Acc. 308014. Lightly pigmented melanoma cells of epithelioid type are being shed from the iris surface into the anterior chamber. (Hematoxylin and eosin; × 50)

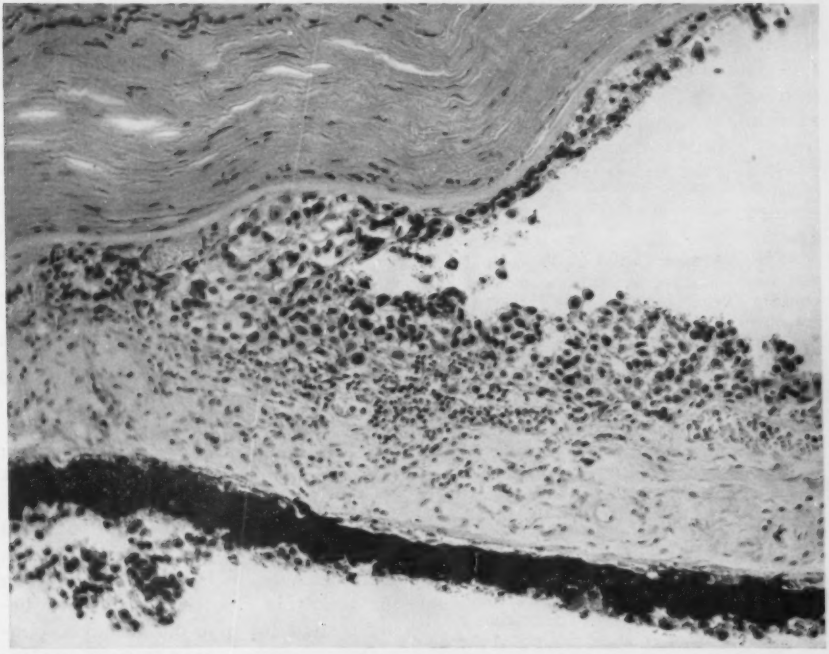

FIG. 6—Case 3, AFIP Acc. 308014. Desquamated tumor cells fill the false anterior chamber angle. (Hematoxylin and eosin; × 180)

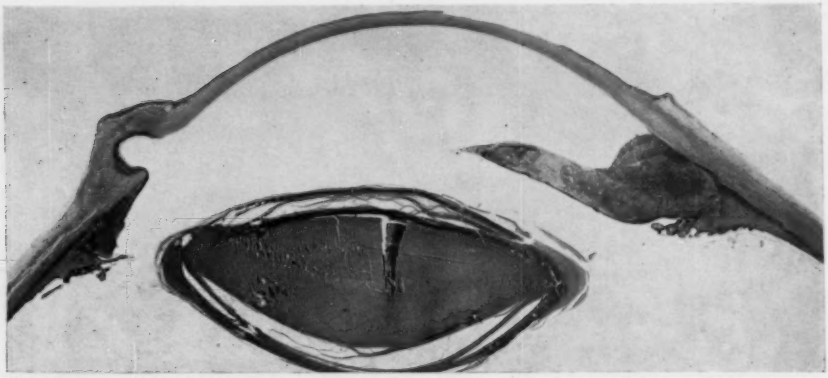

FIG. 7—Case 4, AFIP Acc. 35190. The cystoid corneal scar lined by iris remnants and melanoma cells indicates the iridectomy site. The opposite iris leaf is diffusely infiltrated by the tumor, which has also formed a nodule filling the chamber angle. (Hematoxylin and eosin; × 9)

the correct diagnosis suspected until revealed by examination of the pathologic material. Both cases were contributed to the Registry by ophthalmologists in small cities, but case material of the same type has been obtained from ophthalmic laboratories of outstanding medical centers in this country, where in spite of a broader experience and the availability of modern diagnostic techniques, correct conclusions were not reached prior to operations for glaucoma.

Case 5

AFIP Accession 752058. A 50-year-old man was found to have an ocular tension of 75.0 mm. Hg (Schiøtz) in the right eye. A trephining operation was performed, but two weeks later the tension again became elevated. This time it was treated by cyclodialysis. The tension remained normal following this operation, and no defect was reported in the patient's visual fields and central vision. However, there was an increasing pigment deposition on the iris and in the chamber angle, so that finally the diagnosis of diffuse melanoma of the iris was suspected and the eye was enucleated. On microscopic examination of the sectioned eye, it was evident that the peripheral iris and adjacent ciliary body were diffusely infiltrated by a rather deeply pigmented melanoma (fig. 8). Tumor cells filled the anterior chamber angle, infiltrated the intertrabecular spaces, and plugged the canal of Schlemm (fig. 9).

Case 6

AFIP Accession 293695. A 28-year-old white man had an attack of acute glaucoma in his right eye for which an iridencleisis was performed, followed later by a cyclodialysis. Vision was reduced to 20/200. Pigment deposits and fragments of tissue were then noted on the posterior corneal surface and in the chamber angle, and a bridge of tissue was seen extending from the iris to the cornea in the temporal angle. There were exacerbations and remissions of glaucoma in spite of the use of miotics and a second cyclodialysis. The preoperative clinical diagnosis was secondary glaucoma probably due to siderosis. The eye was enucleated two years after the onset of glaucoma. Microscopic examination revealed numerous anterior synechias and an ectatic corneal scar in which the iris was incarcerated. In the region of this adherent leukoma (fig. 10) the iris was diffusely infiltrated by pigmented tumor cells, which were also being shed into the anterior chamber. The melanoma cells were predominantly of the epithelioid variety.

It was noted early in this presentation that in one of the cases from the Episcopal Hospital (case 2), an early iris biopsy revealed a benign lesion, but upon subsequent removal of the eye a malignant melanoma of the iris was found. In the following case the patient was being treated for glaucoma, but the ophthalmic surgeon performed an iris biopsy in conjunction with measures to re-

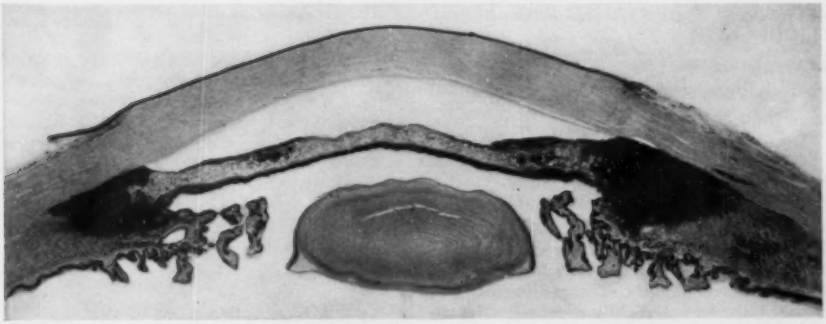

FIG. 8—Case 5, AFIP Acc. 752058. Diffuse thickening of the peripheral iris and adjacent ciliary body by infiltrating tumor, which also breaks into and fills much of the anterior chamber angle. (Hematoxylin and eosin; × 14)

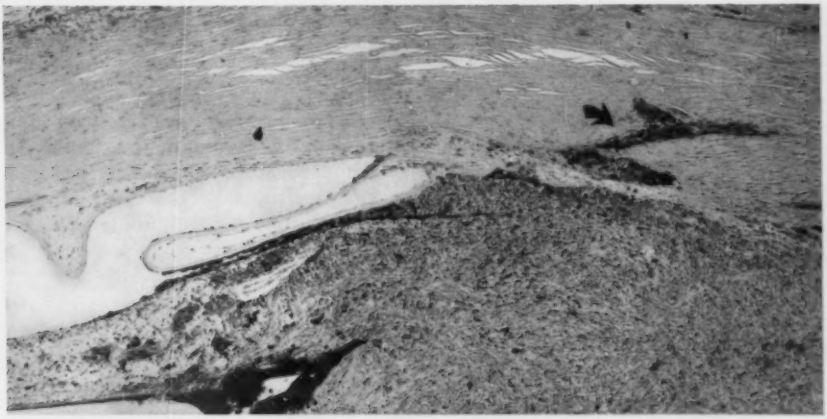

FIG. 9—Case 5, AFIP Acc. 752058. The canal of Schlemm and intrascleral veins (arrow) are obstructed by melanoma cells. (Hematoxylin and eosin; × 56)

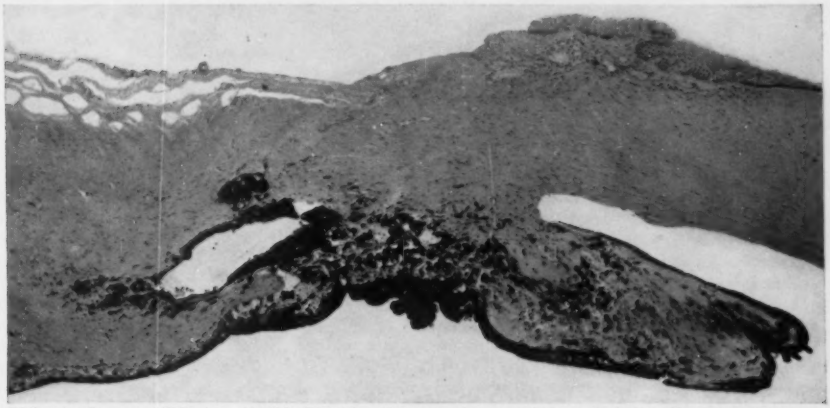

FIG. 10—Case 6, AFIP Acc. 293695. The iris adheres to the corneal scar which is infiltrated by malignant melanoma cells. (Hematoxylin and eosin; × 56)

lieve glaucoma. This established the correct diagnosis and definitive treatment was then carried out.

Case 7

AFIP Accession 272152. A 69-year-old white man, who complained of failing vision in his left eye, was found to have a tension of 48.0 mm. Hg (Schiøtz) which could not be controlled with miotics. The conjunctiva was injected, the cornea slightly edematous, the anterior chamber shallow, and the pupil eccentric. Deposits of pigmented cells were found on the posterior corneal surface, in the anterior chamber, and on the lens capsule. There was a broad posterior synechia at the 3-to-4-o'clock position, with pigment rolling out over the iris at the pupillary margin. The pigment deposits between the iris and lens appeared to be about 1 mm. thick. An iridencleisis with anterior sclerectomy was performed, and at the same time the adherent iris sector was excised. Microscopic examination of the iridectomy specimen established a diagnosis of malignant melanoma (fig. 11). The tension remained elevated and the eye was enucleated.

Examination of the enucleated eye revealed extension of tumor into the iridencleisis wound, a cystoid scar at the anterior sclerectomy site, and a peripheral iris coloboma. Much of the remaining iris was diffusely invaded by lightly pigmented, spindle-shaped tumor cells. Although the general contour of the anterior chamber angle was unaltered, tumor cells extended along the surface of the uveal meshwork and into the intertrabecular spaces (fig. 12).

We do not wish to give the impression that this type of iris tumor is never suspected and that it cannot be diagnosed by clinical investigation. In the following case a discerning ophthalmologist made the correct interpretation, although admittedly the condition was different from anything he had ever seen. The combination of a good clinical history and a thorough examination led him to suspect the presence of a diffuse melanoma. This suspicion was proved correct by iris biopsy, and the eye was enucleated.

FIG. 11—Case 7, AFIP Acc. 272152. The iridectomy specimen reveals diffuse invasion of the iris stroma by lightly pigmented melanoma of spindle-cell type. A tumor nodule also projects from the anterior iris surface (arrow). (Hematoxylin and eosin; × 48)

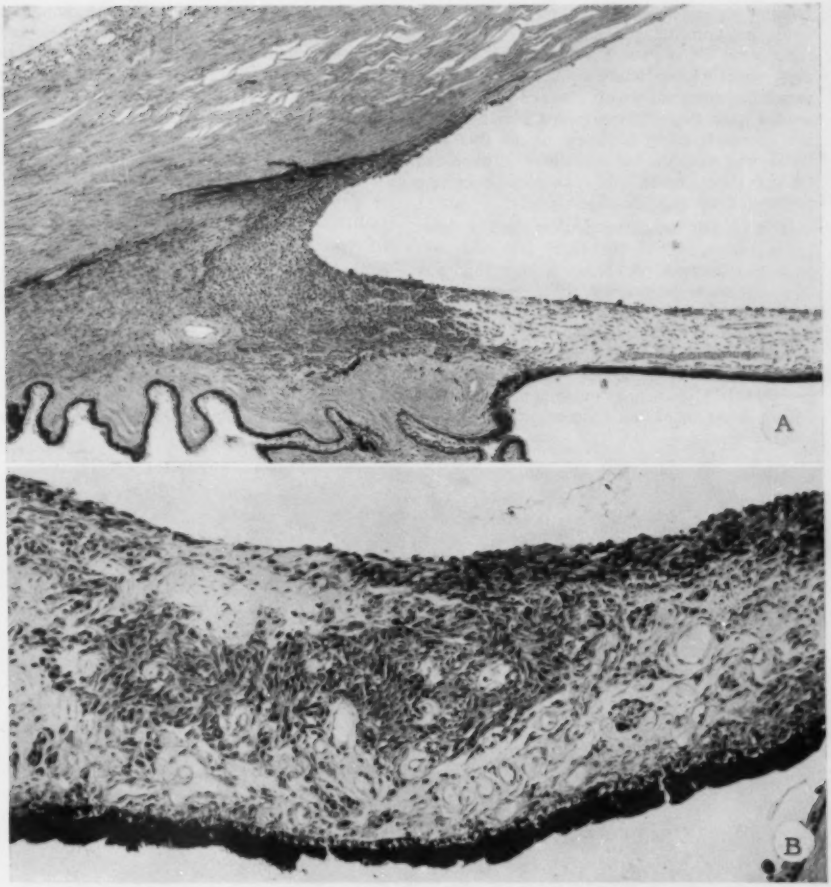

FIG. 12—Case 7, AFIP Acc. 272152. Tumor cells similar to those in the iridectomy specimen infiltrate the iris in a patchy but diffuse manner, extend into the chamber angle, and plug the filtration apparatus. (Hematoxylin and eosin; A, × 63; B, × 110)

Case 8

AFIP Accession 488850. A white woman, 30 years of age, complained of poor vision and a change of color in her right eye. In her childhood a brown spot had been observed in the upper outer quadrant of her right iris. This spread until at the age of 20 the originally blue iris was completely brown. The left iris remained blue. Both parents were blue-eyed; no other members of the family had experienced similar change in eye color. The patient first noted a loss of vision at the age of 28. For several months prior to examination she complained of severe unilateral headache on the right side and nausea. These symptoms were due to glaucoma and were relieved by miotics. Examination revealed 20/20 vision, bilaterally, but there was a marked contraction of the right visual field. Tension on the right was 55 mm. Hg (Schiøtz); on the left it was 20. Biomicroscopy after four months of treatment for glaucoma revealed the brown right iris to be covered by a pigmented granular tissue which obscured the normal markings. Only in a small area in the lower nasal quadrant was there any trace of normal iris markings and of the original blue color. The pigment epi-

thelium extended over the pupillary border onto the anterior surface of the iris. The right pupil did not react well to light. Gonioscopy revealed the angle to be open but the pigmented material which covered the iris extended over the filtration angle about its entire circumference. In some places this material was smooth, but elsewhere it appeared "shaggy like moss." It extended over the trabeculae up to Schwalbe's line.

It was felt that the patient had a low-grade melanoma of the right iris and secondary glaucoma. A broad iridectomy was done "in order to procure a specimen for biopsy and to combat the secondary glaucoma." Biopsy established the diagnosis of malignant melanoma (fig. 13), but iridectomy did not control the glaucoma. Enucleation was performed. Microscopic examination revealed diffuse invasion of the remaining iris leaf by spindle-shaped melanoma cells. Although no tumor had been formed, the neoplastic cells had extended over the angle and filled the intertrabecular spaces and canal of Schlemm (fig. 14). There was cupping of the optic disc.

The next two cases illustrate that an originally localized iris melanoma may recur in a diffuse manner after excision of the initial tumor. Such recurrences may take years to become clinically significant by producing secondary glaucoma.

Case 9

AFIP Accession 327763. A 45-year-old white man had a flat brown mass which dis-

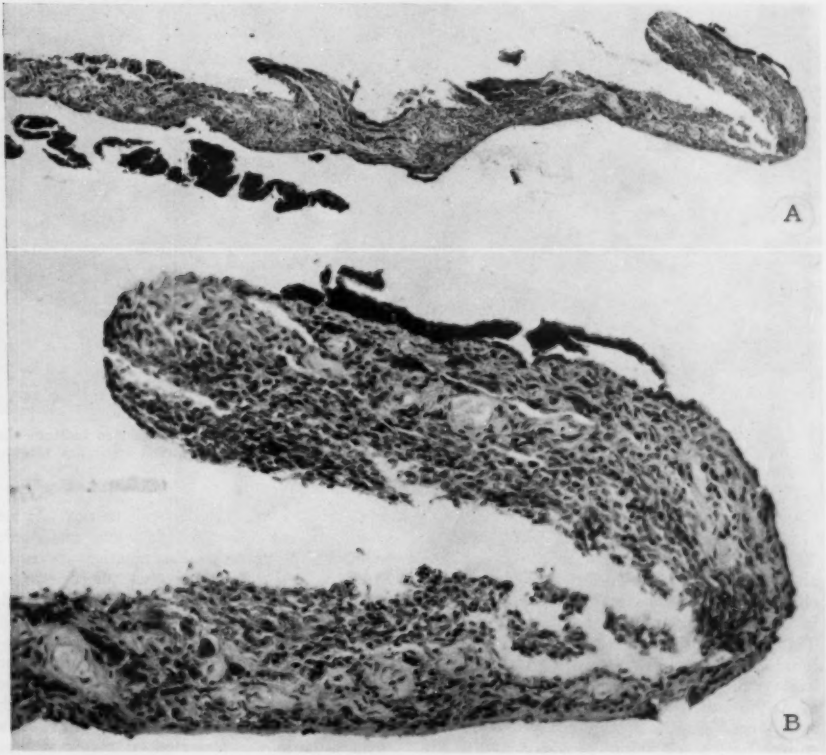

FIG. 13—Case 8, AFIP Acc. 488850. Iridectomy specimen reveals diffuse infiltration of iris by malignant melanoma of spindle-cell type. (Hematoxylin and eosin; A, × 50; B, × 195)

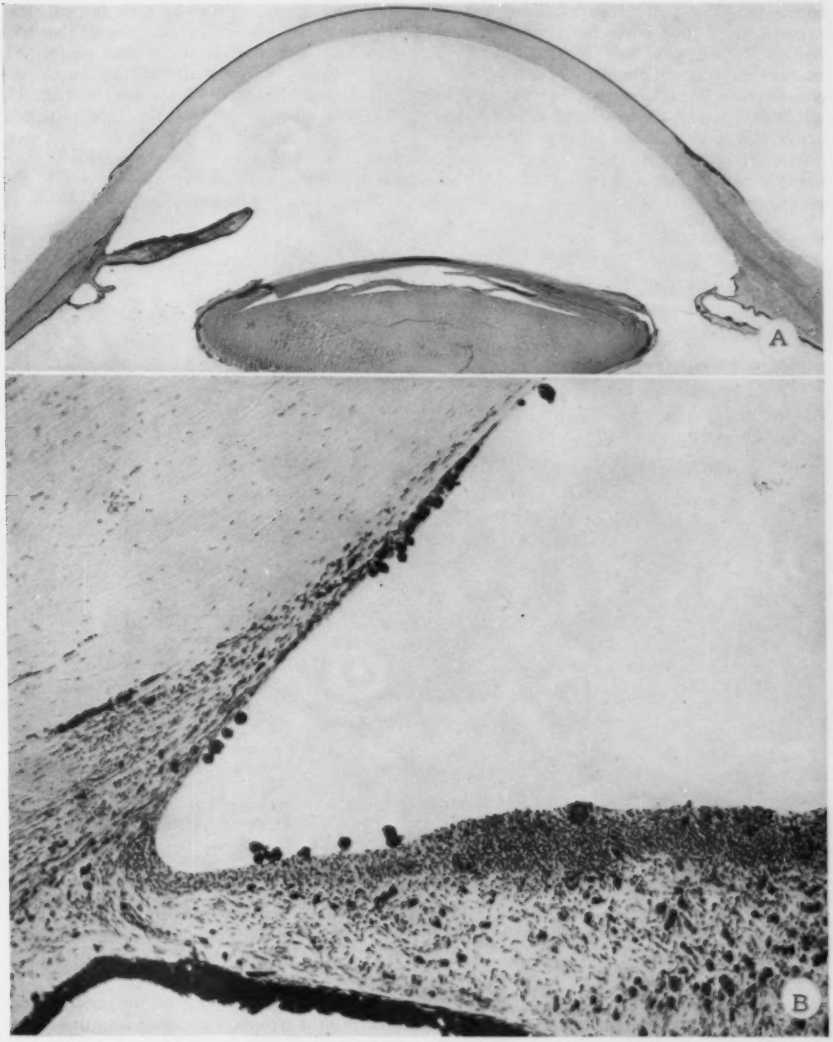

FIG. 14—Case 8, AFIP Acc. 488850. (A) Enucleation specimen reveals iris coloboma at site of iridectomy and opposite iris leaf to be diffusely infiltrated by melanoma cells similar to those observed in iridectomy specimen. (Hematoxylin and eosin; × 11) (B) These cells extend over surface of chamber angle and infiltrate intertrabecular spaces and Schlemm's canal. (Hematoxylin and eosin; × 110)

torted his pupil at the 1 o'clock position on the left iris. Pigment was scattered on the iris surface, but the angle was not occluded nor was the tension elevated. The presence of malignant melanoma was suspected and was confirmed by microscopic examination of the excised iris segment (fig. 15). Excision was considered complete and the eye was not

enucleated. The postoperative course was uneventful until four years later, when elevated tension caused pain and loss of vision. A marked increase of pigment was noted in the chamber angle and on the lens capsule, but no distinct tumor tissue was observed. Radioactive-phosphorus-uptake studies showed no difference between the two eyes. Presumably because of the negative result of the phosphorus-uptake test, and because a mass had lomatous tumor, yellow to dark brown, near the right iris margin at 10 o'clock. The tension was normal. Iridectomy was performed, and histopathologic study of the tumor resulted in a diagnosis of leiomyoma (fig. 17, A). Ten years later the patient observed that a brown spot had developed in his right eye. Examination six months later revealed brownish pigmentation in the sclera adjacent to the limbus at the iridectomy site at 10 o'clock. A

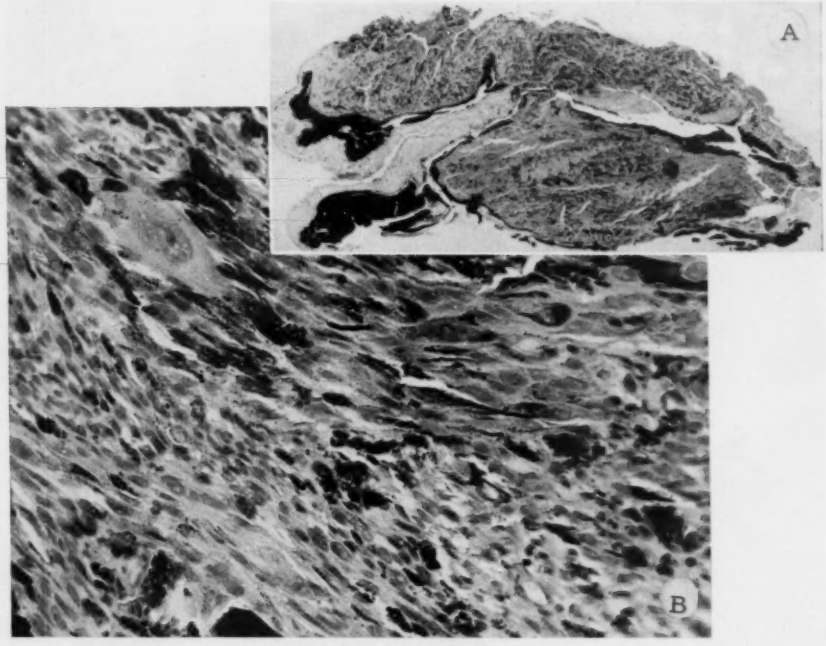

FIG. 15—Case 9, AFIP Acc. 327763. Biopsy specimen reveals iris tumor to be composed of plump spindle-shaped, moderately pigmented melanoma cells. (Hematoxylin and eosin; A, × 28; B, × 380)

not recurred, the diagnosis was "glaucoma secondary to pigmentation," despite the previous biopsy report of malignant melanoma. Examination of the enucleated eye revealed a very thin but deeply pigmented sheet of recurrent tumor about the entire circumference of the anterior chamber angle (fig. 16). Nowhere had any discrete mass formed.

Case 10

AFIP Accession 95390. A 23-year-old white man noted, while shaving, that his right pupil was irregular. Examination revealed a papil- brown tumor was present on the anterior iris surface at 4 o'clock, extending into the filtration angle. This tumor was removed by iridectomy ten years and nine months after the original operation. It was interpreted as malignant melanoma of the spindle A type (fig. 17, B). Upon review of the first iris tumor, it was believed to be essentially similar though less pigment-producing (fig. 17, A); hence the original diagnosis was changed to malignant melanoma.

Re-examination revealed vision in the right eye of 20/400, correctible to 20/80. The area

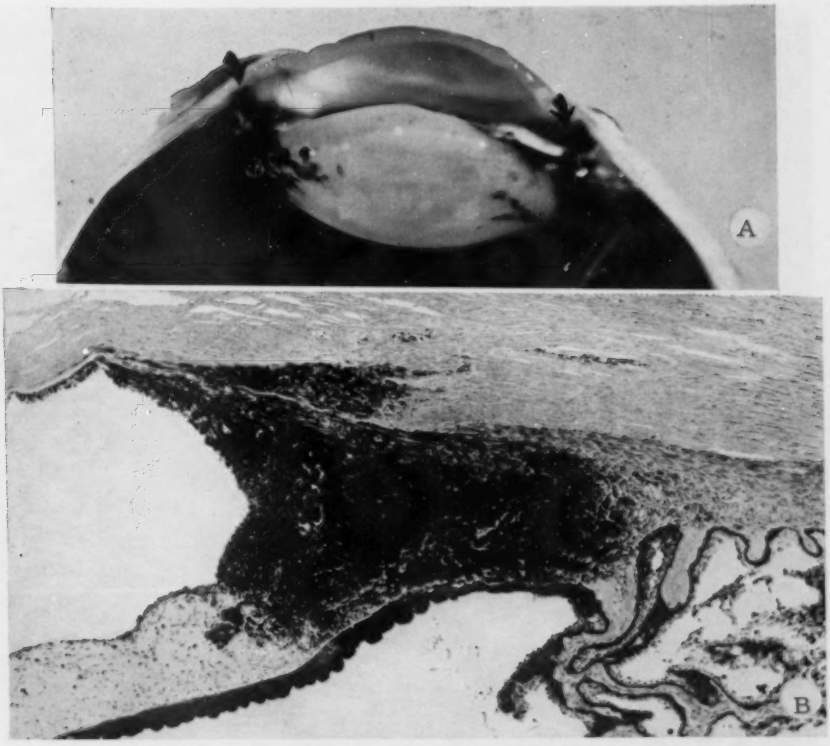

FIG. 16—Case 9, AFIP Acc. 327763. (A) Gross photograph of the anterior chamber angle revealing a sheet-like mass of deeply pigmented tumor filling the angle meshwork, trabecula, and canal of Schlemm (arrow). (B) Photomicrograph showing pattern of recurrence of this malignant melanoma; obstruction to aqueous outflow is produced by tumor tissue, not by pigment alone. (Hematoxylin and eosin; × 56)

of scleral pigmentation at 10 o'clock measured 2 mm. in diameter. Pigmented tumor could be seen on the iris at 6 and 10 o'clock, and in the angle at 4, 6, and 10 o'clock. Radioactive-phosphorus-uptake studies failed to disclose any significant difference between the two eyes. The right eye was enucleated eleven and a half years after the first iridectomy. Microscopic examination revealed extensive but diffuse infiltration of the entire iris and ciliary body by interlacing bundles of almost nonpigmented melanoma cells of spindle A type (fig. 18). A plaque of these same cells infiltrating beneath the limbal epithelium on the temporal side communicated with the iris tumor through the iridectomy wound.

Although clinically this eye was not known to be glaucomatous (tonometry was not done), review of the sections leaves little doubt that early glaucoma was present. The circumference of the anterior chamber angle was filled with tumor, the lamina cribrosa was bowed backward, and there was a loss of ganglion cells in the peripheral retina.

This completes the material we wish to present. The story begins with a fortuitous juxtaposition of cases which directed our attention to a clinical syndrome and led us to investigate the frequency with which it occurs. It was obvious that the correct diagnosis was either unsuspected or not attained until late in the course of many of these cases. The difficulty probably resides in the nature of this slowly developing het-

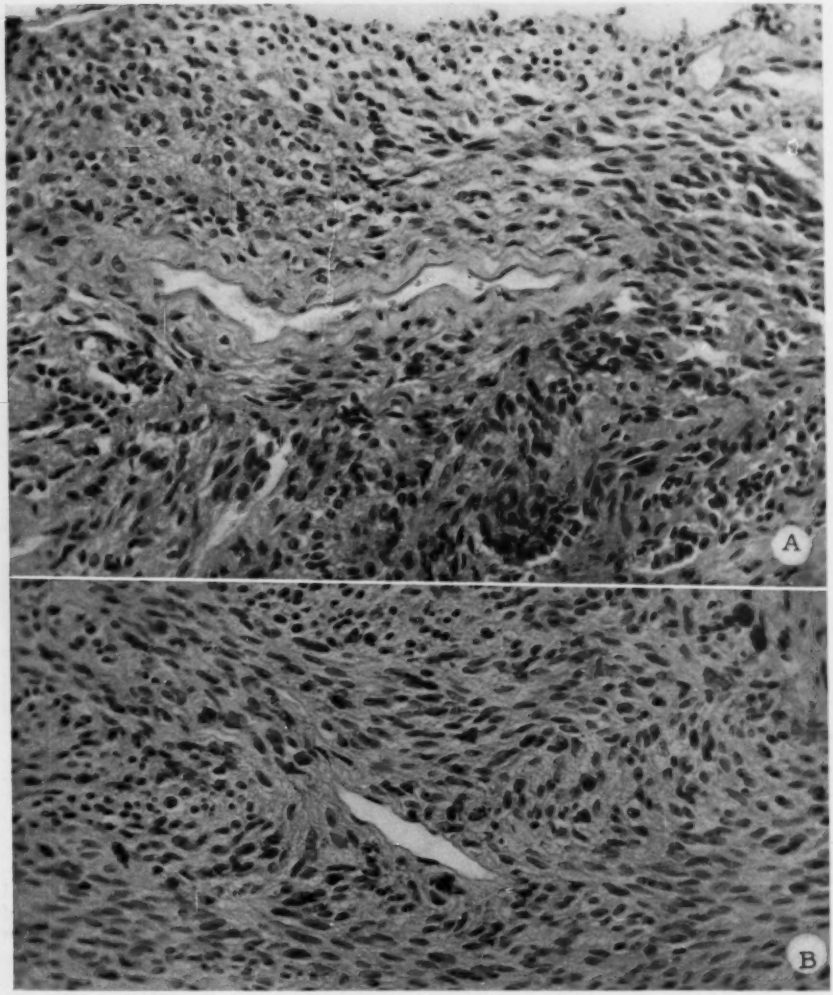

FIG. 17—Case 10, AFIP Acc. 95390. (A) First iridectomy specimen (1943) reveals a virtually nonpigmented melanoma of spindle A type, which originally was interpreted as a leiomyoma. (Hematoxylin and eosin; × 350) (B) Second iridectomy specimen obtained almost eleven years later reveals a somewhat more cellular and more pigmented tumor of essentially the same cell type. (Hematoxylin and eosin; × 350)

erochromia, whereby the examiner's attention is fixed upon the elevated intraocular pressure rather than upon the accompanying pigmentary disturbance.

There are several aspects of this study that have not been presented, but that will be considered later. We have not attempted to discuss the type of the cells found, their prognostic significance, and their manner of growth. The comparisons of this cellular growth in the iris

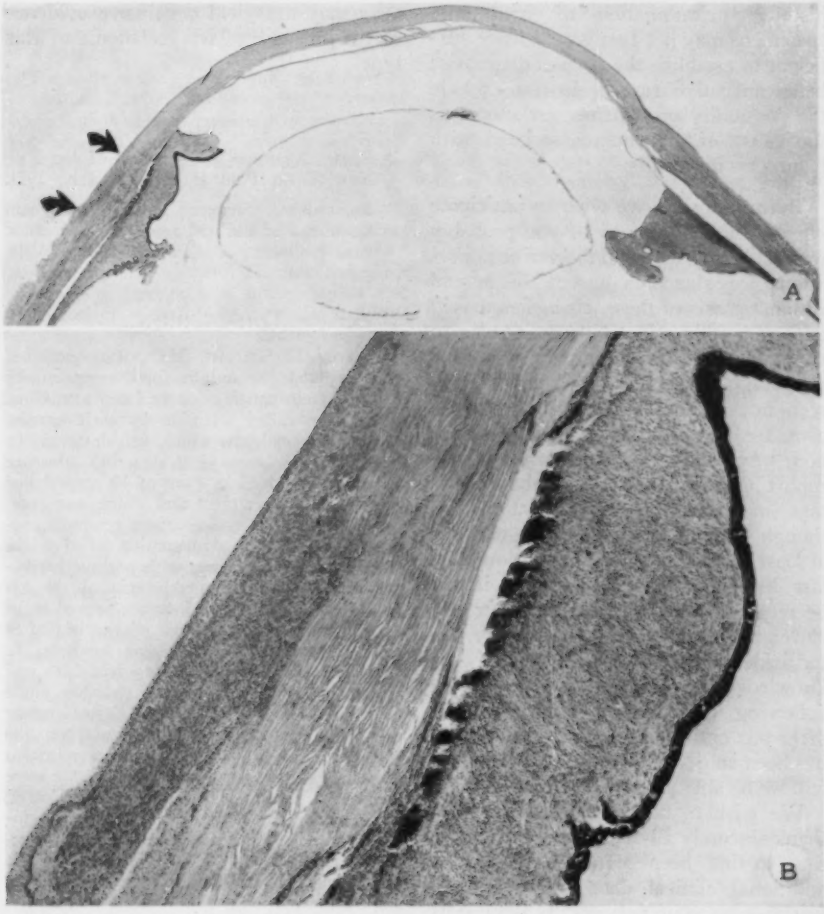

FIG. 18—Case 10, AFIP Acc. 95390. In the enucleated eye, interlacing bundles of almost nonpigmented melanoma cells of spindle A type diffusely thicken the entire iris and ciliary body and completely obstruct the anterior chamber angle. An area of subconjunctival tumor representing extension through the iridectomy wound of 1943 is indicated by arrows in (A) and enlarged in (B). (Hematoxylin and eosin; A, × 9; B, × 56)

with those seen in other portions of the uveal tract, the mechanisms of chamber-angle blockage, the manner of egress of tumor cells from the eye, and the significance of argyrophil fiber content of iris tumors are topics we plan to discuss in subsequent communications.

There are, however, two points which we do wish to emphasize: First, when the iris of one eye appears darker than that of the fellow eye, particularly when this heterochromia is known to be acquired rather than congenital and is accompanied by ipsilateral glaucoma, the possibility of a malignant melanoma of the iris should always be considered. Second, such special studies as gonioscopy, radioactive-phosphorus uptake, and even

histologic examination of iridectomy specimens may not furnish evidence sufficient to establish the correct diagnosis; hence, negative results do not exclude the possibility of a diffuse melanoma as the cause of glaucoma associated with heterochromia iridis.

Before closing, we wish to anticipate one question that many of you probably would like to ask: "Did the various operations for glaucoma hasten the spread and metastasis of these iris melanomas?" Although it is still too early for us to supply an authoritative answer to this question, we can say that so far we have seen no evidence that these operations caused early distant metastasis. In fact, none of the 10 patients described in this report have had local recurrences or distant metastasis after enucleation, although 4 of the cases were followed for at least five years after enucleation. The last 2 patients (cases 9 and 10), it will be recalled, had been followed four and eleven and a half years, respectively, after iridectomy, and to the best of our knowledge they are still living and well following enucleation. However, only after our entire series of about 60 cases has been subjected to follow-up analysis, will we be able to furnish statistical data.

We wish to take this opportunity to thank sincerely all of you who have from time to time been requested to furnish additional clinical data and follow-up histories on your patients. It is only as a result of your efforts that we can supply some of the information you would like to have.

CONCLUSIONS

1. The combination of increasing pigmentation of one iris and ipsilateral glaucoma should arouse suspicion of the presence of diffuse malignant melanoma of the iris.

2. Gonioscopy, biomicroscopy, radioactive-phosphorus-uptake studies and biopsy may not yield conclusive evidence of the presence of iris melanoma of this type.

REFERENCES

1. Reese, Algernon B.: Tumors of the Eye, New York, Paul B. Hoeber, Inc., 1951.

2. Richardson, Shaler: Diffuse malignant melanoma of the iris, report of two cases, Am. J. Ophth., 31:1223-1231 (Oct.) 1948.

DISCUSSION

HARVEY E. THORPE, M.D., Pittsburgh: I wish to thank the authors for the opportunity to read their paper prior to its presentation. They have called attention by their careful report to a syndrome which well deserves our interest. Their cases indicated (1) presence of glaucoma which in 9 out of 10 cases failed to respond to treatment and which was associated with (2) an important symptom, acquired increase in pigmentation of the iris. This unilateral glaucoma with positive heterochromia, or rather hyperchromia of the affected eye, was in each instance proved to be due to malignant melanoma of the iris after enucleation and histopathologic analysis. In addition to the melanosis of the iris there was pigmentation of the anterior chamber angle structures. Several of the cases showed tumor cells free on the iris surface and on the trabecula. Generally, the clinical examination might not arouse our suspicion unless we were alerted, as we are in this report of 10 cases. One should remember that a glaucoma associated with localized and especially diffuse acquired pigmentation of the iris and which is accompanied by a diffuse anterior chamber angle pigmentation should indicate that an iris biopsy should be performed. Careful follow-up is essential over a long period of time.

Localized malignant primary iris tumors may show one or more feeder vessels from the periphery. The normal iris markings are prone to disappear with the advent of diffuse melanotic infiltration. The pupil shape and reaction may be affected. There is an additional acquired diffuse pigmentation of the drainage angle structures. This is not especially characteristic in its appearance except for dense diffuseness.

The radioactive-phosphorus-uptake test gave negative results in the cases in this group in which it was tried. In one case, a biopsy did not indicate the presence of a malignant le-

sion. In several cases the excision was considered complete. In some cases the recurrence was years later.

The authors have proved their case that we should suspect a malignant iris melanoma when unilateral acquired iris hyperchromia is present with glaucoma. (There is a remote possibility that a similar process may take place in the fellow eye.)

A. RAY IRVINE, JR., M.D., Los Angeles: Dr. Rones and Dr. Zimmerman have provided additional evidence that malignant melanoma of the iris may produce heterochromia and unilateral glaucoma. They have also indicated that the majority of these tumors are clinically undetected, and they emphasize that in the presence of acquired heterochromia and glaucoma, malignant melanoma of the iris must be considered.

Possibly their presentation would have been more comprehensive if the authors had provided additional clinical features that would better enable the physician to make a diagnosis. For example, there must be structural features of the iris stroma involved by tumor that clinically differ from those of the irides of other glaucomas. Mention was not made of transillumination. The histologic sections suggest that these irides would not transilluminate in contrast to the atrophic irides of other glaucomas. These tumors must often invade and destroy or alter the function of the iris musculature. This, in turn, may be reflected by pupillary responses that differ from those expected in other glaucomas.

The lack of clinical data is not the fault of the authors. The critical observation and recording of physical characteristics that might permit a positive diagnosis is the responsibility of the clinician. Unfortunately, the data provided to the pathologist are often meager.

DR. ZIMMERMAN: We wish to thank Dr. Thorpe and Dr. Irvine for emphasizing the clinical features that should be looked into and described more thoroughly, and we would certainly appreciate receiving with every specimen that is sent to the laboratory all the information that Dr. Irvine outlined. I think that if we can get this accomplished it will be something very valuable to all of us.

We do want to take this opportunity to thank all of you who were so kind as to trace patients who had been out of your offices for many years.

Just before leaving Washington I was able to accumulate follow-up statistics which I should like to show you, because some of you, I am sure, were among those who did go out of your way to get this follow-up information for us (table I). You will see that only 4 patients are known to have died with metastatic tumor and that quite a large number have lived more than five years. I think this points to the fact that we are dealing with a biologically different type of melanoma, one which is locally infiltrative, invades the intertrabecular spaces, plugs the canal of Schlemm, causes glaucoma, but does not tend to produce distant metastasis.

TABLE I

DIFFUSE IRIS MELANOMAS
Follow-up of 67 Patients

Dead with metastatic tumor	4*
Dead without evidence of metastasis or recurrence	4†
No data	20‡
Living without tumor	39
Follow-up: 0- 5 yr.	16
5-10 yr.	19
10-15 yr.	4

* Includes 2 patients who survived more than 5 years.

† Includes 1 patient who survived 7 years.

‡ Includes many patients for whom no data have been acquired because their cases are current. Others in this group were patients long ago and they could not be traced in order to secure follow-up data.

LETHAL MIDLINE GRANULOMA

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BY INVITATION
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BALTIMORE, MARYLAND

LETHAL midline granuloma is a progressive, ulcerative lesion of the midline structures of the face, including the nose, the oral cavity, the sinuses, and the orbits. The cause of the condition is unknown and its outcome is almost invariably fatal. The first record of this condition in the literature is that of a case described by McBride[10] in 1897, entitled "A Case of Rapid Destruction of the Nose and Face." Since then reports of sporadic cases have appeared in the literature under a variety of titles: lethal granulomatous ulceration involving midline facial tissues,[13] granulomatous ulcer of nose and face,[5] gangrenous osteomyelitis of paranasal sinuses,[8] chronic infectious granuloma of the nose,[9] progressive lethal granulomatous ulceration of nose,[12] malignant granuloma of nose,[15] and idiopathic lethal granulomatous ulceration of the nose and face.[14]

In 1953 Levan[7] collected reports of 70 cases, adding 3 of his own. Since then case reports have appeared with increasing frequency, though the majority of these reports have been in the otolaryngologic literature. Recently, Cutler and Blatt[2] cited 11 other unreported cases and reported 2 cases of their own, describing the ocular changes in one case. These authors, calling attention to the ocular complications of the process, found that 38 of the 97 reported cases in the literature involved the eyes.

It is the purpose of this paper to describe 4 such cases studied at the Johns Hopkins Hospital and to present the salient features of the histopathologic process. Cases 1, 2 and 3 were studied at the Wilmer Institute. The fourth case is included through the courtesy of Dr. Abraham Genecin, and a detailed report of the autopsy findings in this case has been prepared by Dr. Gerald Spear and Dr. William Walker[11] of the Department of Pathology of the Johns Hopkins Hospital.

CASE REPORTS

Case 1. *R. C.* (J.H.H. 354160)

A 44-year-old white male coal miner was first seen here on June 15, 1945, because of a bleeding ulcer at the right side of his nose. Family history did not contribute pertinent information. Past history of the patient revealed that he had had pneumonia twenty-two years previously. Twenty-four years before his admission the patient developed a penile sore, and results of serology tests were positive for syphilis. The patient was treated with arsenicals. Serologic tests for syphilis have been negative ever since. Eighteen years ago the patient broke his nose in an accident. Four years before admission here, a nasal operation was done at another hospital because he had difficulty in breathing, but the difficulty persisted. Eight weeks prior to admission, the right eye became red and the lids became swollen. The swelling involved the skin over the right side of the nose, and three weeks before admission the lesion became ulcerated. Examination showed a painful, large, necrotic ulceration which involved

From the Wilmer Ophthalmological Institute of the Johns Hopkins University and Hospital, Baltimore.
Presented as a *Clinicopathologic Case Report* at the Sixty-First Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1956, Chicago.

the right ala nasi and some of the neighboring soft tissue over the right maxilla, extending deeply into the bone. The lesion extended into the mouth in the region of the right anterior aspect of the alveolar process (fig. 1).

FIG. 1—R. C., October 14, 1946.

Other results of the physical examination, as well as numerous laboratory studies, were all negative. For eleven days the patient received a total of 2200 roentgens to the affected area.

Between June 1945 and July 1953 the patient had seventeen hospital admissions for plastic procedures to reconstruct the nose and to correct a naso-oral fistula, which required multiple grafts of skin, cartilage and bone. On the occasion of the eleventh hospital admission, a review of all pathologic material resulted in a change in diagnosis from lymphosarcoma to chronic inflammation. In August 1954, the patient was readmitted for the eighteenth time because of breakdown of the tissues in the reconstructed nose (fig. 2). Examination of material removed from the right ethmoid and nasal regions again disclosed "chronic inflammation and ulceration." More tissue from the palate and maxilla was submitted to the laboratory six weeks later; on this occasion all of the previous pathologic material was again reviewed in the Department of Pathology. This time it was felt that the findings were compatible with the diagnosis of lethal midline granuloma. On November 4, 1954, right pansinusectomy and excision of necrotic maxilla and orbital contents on the right were carried out. The floor of the orbit was necrotic, and there was necrosis of orbital fat and extraocular muscles. The patient was treated postoperatively with systemic cortisone. The patient did well following this procedure (fig. 3). He was last examined on January 25, 1956, at which time there was no evidence of any activity or spread of the disease.

FIG. 2—R. C., August 24, 1954.

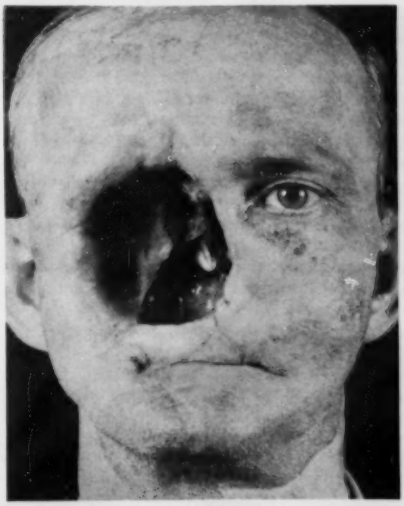

FIG. 3—R. C., May 12, 1955.

Case 2. F. H. (J.H.H. 689665)

A 34-year-old white male carpenter was first seen in the Out-Patient Department of the Johns Hopkins Hospital on November 15, 1954, with the complaint of a growth in his nose. Family history was noncontributory of pertinent information. Past history of the patient revealed that his general health had been good. He had had the usual childhood diseases, including measles, mumps, chickenpox and whooping cough. He had had pneumonia at the age of 18 months. Appendectomy had been done in 1947. For several years he had had frequent episodes of diarrhea, diagnosed elsewhere as mucous colitis. About four years before his first examination at Johns Hopkins, the patient had noticed nasal stuffiness and obstruction, diagnosed as "sinus trouble," which persisted. One year before, he had noticed onset of considerable nasal discharge, serous in character. Swollen "tissue" was seen in his nose, and several biopsies were done else-

where, all said to have been "negative." Eleven months before, the left antrum was opened surgically. Several more biopsies were done, all of which were again "negative."

Examination on November 15, 1954, showed the left nasal passage to be completely occluded by pale white macerated tissue which was attached to the medial and lateral walls. The right nasal cavity appeared normal. Roentgenograms showed destruction of the walls of the left antrum and ethmoids. On November 17, 1954, at another hospital, a Caldwell-Luc procedure was done on the left antrum, and considerable tissue was removed. A presumptive diagnosis of lethal midline granuloma was made, and the patient was started on a regimen of systemic cortisone and systemic erythromycin. He got along quite well until January 1955, when discomfort developed in the roof of his mouth. The left side of the nose became swollen. The patient was given 500 roentgens to his left nasal cavity from January 10 to January 19, 1955. The edema of his left lids increased, and a perforation from his nasal cavity to the left side of his cheek occurred, involving the inner canthus of the left eye.

On February 21, 1955, the patient was admitted to the Johns Hopkins Hospital for the first time. He was well developed and well nourished. There was a large ulcerated area at the inner canthus of the left eye which opened into the left nasal cavity (fig. 4). The

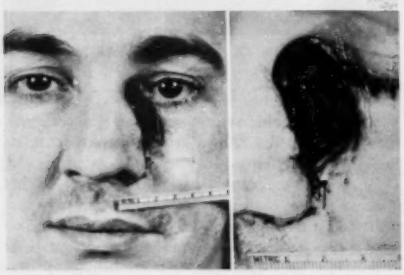

FIG. 4—F. H., February 21, 1955.

left nasal cavity was filled with granulation tissue. There was an ulceration of the hard palate (fig. 5). Other results of the physical examination were essentially negative. Numerous laboratory studies were made, including serologic test for syphilis, blood count, FBS, tests for nonprotein nitrogen, calcium, phosphorus, serum albumin and globulin, and a urinalysis. Findings on these tests were within normal limits. Cultures from the nose showed coli-aerogenes and hemolytic Staphylococcus aureus, alpha streptococcis, Streptococcus faecalis and Candida albicans. Fungus cultures and acid-fast cultures were negative. On March 8, 1955, a left rhinotomy with debridement of a great deal of necrotic tissue from the nasal cavity and paranasal sinuses was done. Pathologic examination of this material confirmed the previous pathologic diagnosis of lethal midline granuloma.

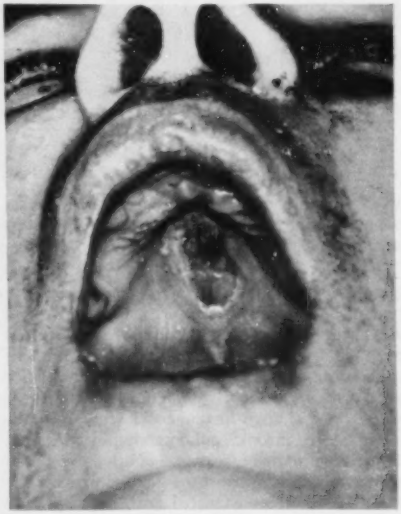

FIG. 5—F. H., February 21, 1955.

The patient was treated with large doses of cortisone and various antibiotics. In April 1955 a typical dendritic ulcer of the left cornea developed, but it cleared after iodine cauterization. The patient was discharged unimproved on April 22, 1955. He did poorly and was readmitted to the hospital on July 21, 1955. On July 23, 1955, rhinotomy with debridement of granuloma, including right inferior turbinate, medial wall of right antrum, and anterolateral portion of the right hard palate, was done. Again results of numerous laboratory studies were normal. The patient was discharged on August 12, 1955, still on systemic cortisone. The third admission was from August 17, 1955 to August 25, 1955, for surgical excision of the right sphenopalatine ganglion.

On October 17, 1955, the patient was admitted to the hospital for the fifth time. Tearing of the right eye had developed, with marked swelling of the lids on the right side. There was necrosis of the skin at the right

inner canthus. On October 20, 1955, excision of necrotic tissue involving the right inner canthus and the right nasolacrimal passages was carried out. At the time of operation it was noted that the necrotic area and granulation tissue seemed to create a pattern very similar to the lacrimal passages, two limbs of necrotic tissue extending up toward the upper and lower puncta, and a larger area of necrosis in the lacrimal sac region. The conjunctiva appeared healthy. Pathologic diagnosis was again lethal midline granuloma. The patient was discharged on November 7, 1955.

An exposure keratitis and corneal ulcer developed on the right. This did not respond to local therapy. A tarsorrhaphy was carried out, but the ulcer perforated. The patient was readmitted on December 27, 1955, for formation of a conjunctival flap, and was discharged on January 5, 1956.

FIG. 6—F. H., March 6, 1956.

The patient continued to do poorly and continued to run an irregular spiking temperature. The areas of necrosis continued to progress, and he was readmitted on February 7, 1956. On February 14, 1956, exenteration of the right orbit, with extensive removal of necrotic granuloma tissue from all the remaining sinuses, was carried out. On March 2, 1956, a deep erosion into the left arytenoid was noted. The patient was discharged on March 6, 1956, unimproved (fig. 6). Between March 20 and July 19, 1956, he received roentgen therapy to various regions of his face and larynx, which gave considerable temporary improvement.

On August 19, 1956, he was readmitted for the eighth time; the necrotic lesion had extended to the base of the skull and to the posterior pharyngeal wall. He continued to run a spiking temperature. His general condition deteriorated, and he became comatose and expired on October 4, 1956.

Case 3. O. M. (J.H.H. 401102)

A 60-year-old white male was first seen at the Johns Hopkins Hospital on October 7, 1946, with a diagnosis of osteomyelitis of the hard palate. For fifteen or more years he had had symptoms of nasal obstruction and nasal discharge. Six months before coming here he had had a nasal operation performed elsewhere, followed by an elevation of temperature and by nasal discharge. For several weeks there was epiphora of the left eye. Two weeks before admission an ulcerated area had developed in the patient's hard palate, with exposure of bone. This did not respond to penicillin and sulfonamides, and the patient was sent here. Past history and family history were noncontributory of pertinent information.

Examination showed an ulcerated area in the hard palate, filled with mucopurulent discharge. The results of the remainder of the physical examination and of numerous laboratory tests were within normal limits. Sequestrectomy of the hard palate was carried out. The pathologic report was "necrotic bone and debris."

One month later, on November 25, 1946, the patient was readmitted to the hospital because of malaise, fever, and headache. Examination showed necrosis involving the hard palate, left maxilla, and vomer. Temperatures ranged from 101 to 102 in spite of the administration of penicillin and sulfamerazine. The patient was discharged on December 31, 1946, with his condition essentially unchanged.

In January 1947 redness, swelling and tenderness of the right cheek developed; it localized to the inner canthus of the right eye. This lesion was incised in another hospital, and the incision continued to drain purulent material. The patient was readmitted for the third time on February 5, 1947, with necrosis involving both maxilla, the vomer, ethmoid plates, and sphenoids. He was treated with various local and systemic antibiotics, and discharged on March 5, 1947. His fourth admission was on May 6, 1947, because of recurrent malaise and low-grade fever, and continued necrosis of the nasal cavity. Ethmoidectomy

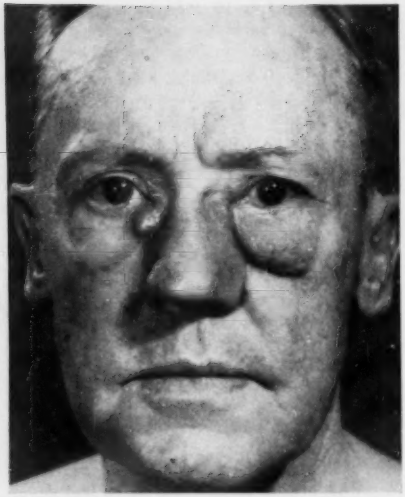

FIG. 7—O. M., September 30, 1947.

and sphenoidectomy, with removal of necrotic granulation tissue, were carried out. The pathologic report was "ethmoid sinus: subacute sinusitis." The patient was discharged on July 23, 1947.

On September 30, 1947, the patient was admitted for the fifth time. There was swelling over the right lacrimal sac and edema of both lower lids (fig. 7). Extensive curettement of the nasopharynx and ethmoid and sphenoid sinuses was carried out. Necrotic bone was removed from the floor of both orbits. Pathologic diagnosis was "chronic sinusitis." The patient was discharged on October 30, 1947.

On November 25, 1947, he re-entered the hospital for the sixth time because of progression of his symptoms. The nose was swollen, and there was swelling over both lacrimal sacs, with a draining sinus below the left eye. On December 3, 1947, further excision of necrotic tissue was carried out. Pathologic diagnosis was "nose: carcinoma." Another biopsy was done twelve days later; findings were interpreted as "granulation tissue." Diplopia developed, with evidence of involvement of the extraocular muscles in the left orbit. There was marked edema of the lids on the left. He developed exposure keratitis on the left, and on March 25, a left medial tarsorrhaphy was done. The patient was discharged on April 28, 1948.

The patient's seventh admission was on August 21, 1948, because of progression of the disease process. There was marked redness and swelling of the lids on the right, with severe chemosis. Various types of local and systemic therapy were instituted without improvement in the patient's condition, and he was discharged on September 7, 1948.

The eighth and last admission was on September 22, 1948. The patient's right eye was swollen shut, with an ulcerated area below the inner canthus (fig. 8). Further extensive removal of necrotic material was carried out. The pathologist's report was "chronic sinusitis," and the patient was discharged home. Six months later he died of meningitis at another hospital after extension of the disease process through the dura.

After re-evaluation of the clinical and the histopathologic features of the case, it was diagnosed as lethal midline granuloma.

FIG. 8—O. M., September 24, 1948.

Case 4. *F. A.* (J.H.H. 713001)

This 43-year-old white male air-conditioning salesman was first seen at the Johns Hopkins Hospital on August 11, 1955, with the complaint of nasal discharge for one year. He had begun to have frequent head colds in 1948. In 1951 a tonsillectomy was performed because of his recurrent sore throats. In 1951 he had had an allergic reaction to penicillin. He continued to have sore throats, nasal stuffiness, and drainage of purulent material from his sinuses. In October 1954 he was admitted to another hospital for the treatment of "grip" and an upper respiratory tract infection. He was hospitalized for two months with high fever and a profuse purulent nasal discharge. He evidenced an allergic reaction to Chloromycetin®. Biopsy, in January 1955, of an ulcerated area in his nasopharynx resulted in a report of "chronic inflammation, tissue from nasal pharynx."

In May 1955 a furuncle developed on the lateral wall of the right nasal vestibule and gradually eroded through to the outside. During this period, the patient blew a piece of tissue from his nostril which he couldn't completely deliver, so he cut it off with a pair of scissors, painlessly. In July 1955 biopsy of the nasal septum was performed in another laboratory with the diagnosis of "piece of nasal septal cartilage with necrotic and inflammatory changes."

Examination of the patient by an otolaryngologist at this hospital in August 1955 revealed a large septal perforation with granulomatous thickening about it. The mucosa of the nose, the paranasal sinuses, the pharynx, and the soft palate were thickened and inflamed. The diagnosis of lethal midline granuloma was suggested. The patient was first admitted to the Johns Hopkins Hospital on August 10, 1955. All results of diagnostic laboratory studies were normal. Administration of erythromycin and Neo-Cortef® nose drops resulted in improvement and discharge of the patient on August 23, 1955.

In September 1955 his nose appeared healed. Medication was stopped and symptoms recurred. At this time, red raised nodules appeared on the skin of his legs, on the lateral aspect of his right knee, and above his umbilicus. The report on a biopsy was "skin: compatible with erythema nodosum."

In October 1955 a red swelling became evident under the patient's left eyelid, and a marked prominent red swelling over the left side of his nose; there was crusting inside the nostrils and one third of the septum had been destroyed. He was readmitted to the hospital on October 24, 1955. Report of a biopsy of tissue from the margin of the perforated septum was "intense chronic inflammation and necrosis." The skin lesions and nasal lesions improved with Metacorten® therapy, and the patient was discharged on November 2, 1955.

By December 12 his entire face was puffy and painful with marked swelling about the orbits and nose. The septal perforation was larger. The skin lesions were described as nontender, scaly, and indurated, with irregular nodular areas within them.

On December 18, 1955, the patient was readmitted to the hospital, and despite the administration of antibiotics, Metacorten®, and antipyretics, he ran a fever varying between 101° F. and 106° F. Within three days his lids were swollen almost shut and there was a marked swelling below his right eye. On December 27 his temperature rose to 106, pulse became rapid, respirations became labored, and he died.

OCULAR COMPLICATIONS

The ocular complications in these four patients may be summarized. All of them had edema of the lids. Nasolacrimal duct obstruction was a prominent feature. In two cases this was bilateral, and in one case it was unilateral. The striking involvement of the nasolacrimal passages is well delineated in case 2. As the lids were progressively involved, two eyes suffered exposure keratitis, necessitating tarsorrhaphy. One of these subsequently developed a corneal ulcer with perforation. In this case a dendritic ulcer of the other cornea appeared while the patient was receiving large doses of systemic steroids. Palsy of the extraocular muscles was noted in one case. In two cases, orbital extension of the lesion necessitated exenteration of the orbital contents. In one of these (case 2) progression of the lesion resulted in further destruction of the orbital walls, while in the other there has been no further progression of the disease process.

PATHOLOGIC FINDINGS

Each of the four cases here presented have shown extensive lesions in the nasal and oral cavities, the sinuses, and the

contiguous skin areas. The autopsy findings are available in one of these cases (case 4): in addition to the above listed sites, lesions were found in the trachea, larynx, lungs, iliac lymph nodes and remote skin areas. No renal, splenic, or gastrointestinal tract lesions were noted in this patient. The body of the patient in another case (case 2) was autopsied quite recently at the Johns Hopkins Hospital and the findings are not yet available.

Basically, the lesion is one of dense cellular infiltration, closely associated with areas of necrosis. The nature of the cellular infiltrate varies considerably. In some areas, cells of the small mononuclear series, chiefly lymphocytes and plasma cells, predominate; whereas, in other areas large mononuclear cells are more prevalent (fig. 9). Many of these are the ordinary large macrophages present in nonspecific inflammatory responses, and among them phagocytosis is often a striking and conspicuous feature. In addition, other large mononuclears, quite different in appearance, are often present. These large, round or ovoid cells possess a moderate to scant amount of cytoplasm. Their nuclei are bizarre in shape, bilobate, and crescentic, stellate or ring configurations being common (figs. 10 and 11). Some of these cells appear to be in mitosis. Occasionally, these cells closely resemble the Sternberg-Reed cells of Hodgkin's disease.

Polymorphonuclear leukocytes may be scattered throughout, but characteristically they are completely absent. Eosinophils are rarely seen. Exceptionally, small nests of epithelioid-like cells are encountered. Multinucleated giant cells of the foreign-body or Langhans type were absent except for their presence in one specimen removed for biopsy in case 1 (fig. 12).

The areas of necrosis are striking. There is often complete loss of structural and cellular details, though occasionally these features are partially preserved. The necrosis may be widespread or it may alternate with foci of cellular infiltration varying in size. At the periphery of the necrotic zone there may be an attempt at reparative fibrosis and scarring, but usually such reaction is absent, necrotic areas merging directly into areas of cellular infiltration (fig. 13). In the infiltrated areas, as well as in the necrotic areas, many of the vessels are filled with eosinophilic thrombi (fig. 14). Quite possibly some distant foci of tissue death are the result of vascular thrombosis in proximal regions.

A few specialized features of the process should be noted. There is a conspicuous lack of involvement of lymph nodes adjacent to the lesions. On the other hand, the iliac nodes in the body which was autopsied showed extensive disruption of the normal architecture with characteristic areas of necrosis and cellular infiltration.

The autopsied body also presented several skin lesions—one on the abdomen above the umbilicus, and several on the thighs—quite removed from the midline facial lesions. Examination of these lesions disclosed a widespread infiltration of the subcutaneous fat and dermis with the variegated cells as well as vascular necrosis and thrombosis (fig. 15).

One aspect of the pathologic process which deserves special comment is the perivascular infiltration which, when present, is a striking feature. Small vessels of all sizes and types are frequently surrounded by a thick cuff of mononuclear cells. The vessel walls do not appear to be actually infiltrated by these cells and often there is no necrosis of the walls of these sheathed vessels. Such perivascular infiltrates were seen in the facial midline lesions, in the affected lymph nodes, in the dermis, and in the lungs. In the last named location this perivascular cuffing, without vascular necrosis, was the sole manifestation of the process (fig. 16).

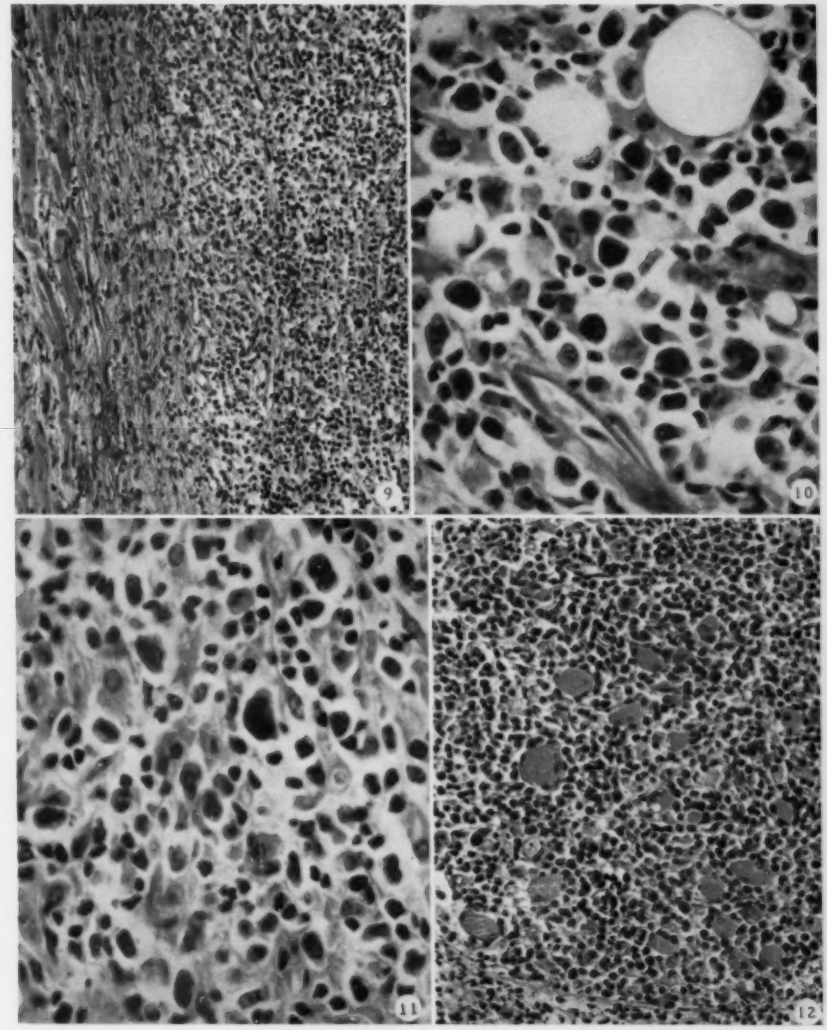

FIG. 9—(Case 4) Dense mononuclear cellular infiltration involving muscular wall of pharynx. (Hematoxylin and eosin; ×200)

FIG. 10—(Case 1) Section of palatal region showing variety of cell types. (Hematoxylin and eosin; × 750)

FIG. 11—(Case 1) Section of palatal region showing large cells with bizarre nuclei. (Hematoxylin and eosin; × 750)

FIG. 12—(Case 1) Section from region of maxillary sinus showing cellular infiltrate in which many giant cells are prominent. (Hematoxylin and eosin; × 300)

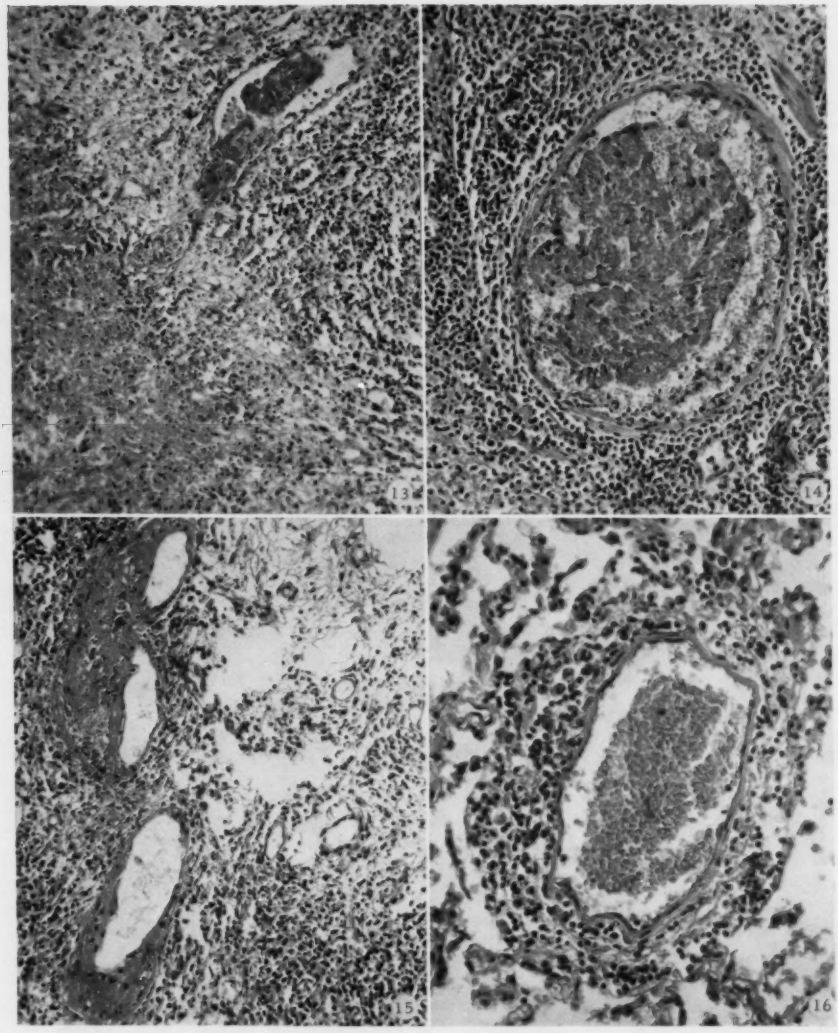

FIG. 13—(Case 4) Section of posterior nasopharynx. An area of cellular infiltration merges into an area of necrosis. Note the lack of reparative response and the partially thrombosed blood vessel. (Hematoxylin and eosin; × 150)

FIG. 14—(Case 2) Sections from orbit showing dense cellular infiltrations with thrombosed vessel which has recanalized. (Hematoxylin and eosin; × 200)

FIG. 15—(Case 4) Cellular infiltrate and partially thrombosed vessels in subcutaneous tissue. (Hematoxylin and eosin; × 200)

FIG. 16—(Case 4) Perivascular infiltrate in lung. (Hematoxylin and eosin; × 300)

COMMENT

The eye has been involved only secondarily in the cases studied here. In one of the cases in which the body was autopsied (case 4), the process did not extend into the orbits and examination of the posterior halves of the globes disclosed no pathologic change. In case 3, an eye clinically uninvolved had to be sacrificed during the course of exenteration of the orbit. In case 2, the lesion extended from the ethmoid sinus into the inner canthus, necessitating partial removal of the lids. Following this exposure, keratitis developed, with eventual perforation, and the eye was finally removed during the course of exenteration. Pathologic examination of this material disclosed a nonspecific corneal ulcer with perforation and acute endophthalmitis. The granulomatous lesion had extended into the orbit but had not invaded the sclera or the meninges of the optic nerve.

As the microscopic picture is so protean in nature, a variety of diagnoses may be suggested, depending upon the predominance of one feature of the lesion over another in the area selected for study. Skin and mucous membrane sites often show pseudoepitheliomatous hyperplasia, occasionally leading to interpretation of biopsy findings as "squamous carcinoma." Other areas showing heavy infiltrates of cells of the lymphoid series may suggest lymphosarcoma. Such diagnosis was made in case 1. Biopsies of the lesions of the nasal and sinus cavities in the cases studied here, lacking in the variegated cellular response, were frequently indistinguishable from those of chronic nonspecific inflammation.

The iliac lymph nodes in the autopsied body contained great numbers of the cells resembling Sternberg-Reed cells. Hodgkin's disease might be strongly suggested were it not for the presence of vascular necrosis and small thrombi, features quite alien to Hodgkin's disease.

Although the cellular infiltrate tended to surround small vessels, the process should not be confused with periarteritis nodosa, as the cellular infiltrate was widespread and bore no constant relationship to blood vessels, nor was the vascular necrosis accompanied by the inflammatory reaction characteristic of periarteritis nodosa.

Sarcoidosis is another granuloma which must be considered in the clinical differential diagnosis, though the chief argument against this granuloma is that it is essentially non-necrotizing.

The relationship with Wegener's granulomatosis is not well defined. Fahey et al.[3] have characterized Wegener's granulomatosis by three marked features:

> . . . (1) necrotizing granulomatous lesions in the upper air passages, lower respiratory tract or both; (2) generalized focal necrotizing vasculitis involving both arteries and veins, almost always present in the lungs and more or less widely disseminated in other sites; (3) glomerulitis, characterized by necrosis and thrombosis of loops or lobes of the capillary tuft, capsular adhesions and evolution as a granulomatous lesion. No one or two of these pathologic changes, in the absence of the others, defines the syndrome anatomically.

The necrotizing granulomas in these cases were characterized by the presence of numerous multinucleated giant cells, both of the foreign-body and of the Langhans type. However, giant cells were certainly not conspicuous in the material studied here, having been noted in only one biopsy specimen from one case. In numerous other biopsy specimens, taken at various stages of the disease process, and in the one case completely studied at necropsy, giant cells were not seen. In addition, no renal lesions were noted in this autopsied case. However, other features of the process —the perivasculitis, the rather unusual obliterative type of necrosis—are very similar to the lesions of Wegener's granulomatosis, as described by Godman and Churg.[4]

Finally, specific infectious diseases—tuberculosis, syphilis, yaws, leprosy, moniliasis, actinomycosis, blastomycosis, sporotrichosis, rhinosporidiosis, histoplasmosis, leishmaniasis—must be ruled out of the picture by the appropriate diagnostic procedures.

The cause of the condition is completely unknown. Williams[13] and Kahn[6] have stressed the belief that the process is related to tissue hypersensitivity. Others suggest that the disease is a neoplasm, possibly related to the lymphomas.[1] And finally, while no specific infectious agent has yet been identified, the possibility of an infectious process cannot be eliminated.

We are equally ignorant of an efficacious method of therapy. Of the four cases here presented, one appears to be in remission, although the patient is severely mutilated. Three of the patients are dead. Chemotherapy has apparently been of no avail; radiation therapy and steroid therapy have proved only temporarily palliative.

SUMMARY

Four cases of lethal midline granuloma studied at the Johns Hopkins Hospital have been reported. Three of these cases have terminated fatally, and one is in apparent remission. These patients suffered ocular complications varying in severity from swelling of the lids to orbital invasion necessitating exenteration. The pathologic process consists primarily of areas of dense cellular infiltration and areas of profound necrosis. Striking components of the cellular infiltration are the presence of many large bizarre mononuclear cells and the frequent localization of the cellular infiltrate about blood vessels. The difficulties of differential diagnosis are enumerated. The cause of this affliction and methods of efficacious therapy are unknown.

REFERENCES

1. Bergqvist, Bo, and Koch, Hjalmar: Contribution to the question of granuloma gangraenescens, Acta oto-laryng., 37:405-414 (Oct.) 1949.
2. Cutler, William M., and Blatt, Irving M.: The ocular manifestations of lethal midline granuloma, (Wegener's granulomatosis), Am. J. Ophth., 42:21-35 (July) 1956.
3. Fahey, John L.; Leonard, Edward; Churg, Jacob, and Godman, Gabriel C.: Wegener's granulomatosis, Am. J. Med., 17:168-179 (Aug.) 1954.
4. Godman, Gabriel C., and Churg, Jacob: Wegener's granulomatosis, pathology and review of the literature, A.M.A. Arch. Path., 58:533-553 (Dec.) 1954.
5. Hoover, Walter B.: Granulomatous ulcer of the nose and face; of unknown cause, usually progressive, gangrenous and fatal, Arch. Otolaryng., 37:865-879 (Nov.) 1941.
6. Kahn, Reuben L.: Tissue immunity—its possible relationship to midline facial granulomatous ulceration, Univ. Michigan M. Bull., 20:208-218 (Aug.) 1954.
7. Levan, Norman E.: Malignant granuloma of the face, A.M.A. Arch. Dermat. & Syph., 68:187-200 (Aug.) 1953.
8. Lewy, A.: A case of gangrenous osteomyelitis of paranasal sinuses, Arch. Otolaryng., 27:91-94 (Jan.) 1938.
9. Lierle, Dean M.: Chronic infectious granuloma of the nose, Arch. Otolaryng., 36: 940-943 (Dec.) 1942.
10. McBride, P.: Photographs of a case of rapid destruction of the nose and face, J. Laryng. & Otol., 12:64-66 (Feb.) 1897.
11. Spear, Gerald S., and Walker, William G., Jr.: Lethal midline granuloma (granuloma gangraenescens) at autopsy, report of a case and review of literature, Bull. Johns Hopkins Hosp., 99:313-332 (Dec.) 1956.
12. Stewart, J. P.: Progressive lethal granulomatous ulceration of the nose, J. Laryng. & Otol., 48:657-701 (Oct.) 1933.
13. Williams, Henry L.: Lethal granulomatous ulceration involving the midline facial tissues, Ann. Otol., Rhin. & Laryng., 58:1013-1054 (Dec.) 1949.
14. Woodburn, C. C., Jr., and Harris, H. E.: Idiopathic lethal granulomatous ulceration of the nose and face, Cleveland Clin. Quart., 18:165-178 (July) 1951.
15. Woods, Robert: Observations on malignant granuloma of the nose, Brit. M. J., 2:65-66 (July 16) 1921.

STURGE-WEBER-DIMITRI SYNDROME

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THE patient, D. P., a white male of Italian descent, was admitted to Willowbrook State School in October 1953, at the age of three years and five months. The referring institution had made a diagnosis of Sturge-Weber-Dimitri syndrome. The family and collateral histories contributed no evidence of familial mental defect, mental illness, tuberculosis, epilepsy, drug addiction, or alcoholism. A cousin of the patient's father had a large facial nevus and a history of "eye trouble."

The patient was the second of two siblings. (The mother's pregnancy, the delivery, and the subsequent development of each sibling were without complication, and each birth occurred at full term.) The only anomaly noted at the birth of the patient was a large nevus flammeus involving his left forehead and eyelids. The patient had been hospitalized at various institutions since he was 2 months old. He had been seen at the Eye Clinic of the New York Eye and Ear Infirmary on July 27, 1950. At that time, the patient had a prominent left globe and a tension of 65 mm. Hg (Schiøtz) in the left eye. His right eye was entirely normal. As the tension could not be controlled medically, an iridencleisis was done September 12, 1950. The corneal diameter of the right eye was 11 mm.; of the left eye, 14 mm. The tension of the left eye was controlled temporarily but an iris membrane soon developed. There was questionable transillumination, and the eye became blind. It was enucleated November 8, 1950.

The pathological report on the left eye follows:

The eyeball is enlarged. The anteroposterior diameter measures 22 mm.; the corneal diameter, 14 mm.

Cornea: No abnormalities.

Limbus: On one side, the outer part of a surgical wound has been filled up by fibrous connective tissue. The lips of the inner part are widely separated, and the space is filled in by prolapsed ciliary body and pigment.

Sclera: No abnormalities.

Anterior Chamber: Obliterated by total synechias (fig. 1).

Ciliary Body: Cyclitic membrane drawing the ciliary body towards the lens. Extensive subchoroidal fluid, detaching the choroid. Ciliary body on the side of the wound shows rupture, extensive disorganization, and attachment to an extensive mass of newly formed connective tissue.

Choroid: Thickened by the formation of a capillary hemangioma in a large part of the choroid (figs. 2, 3, and 4).

Pesented as a *Clinicopathologic Case Report* at the Sixty-First Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1956, Chicago.

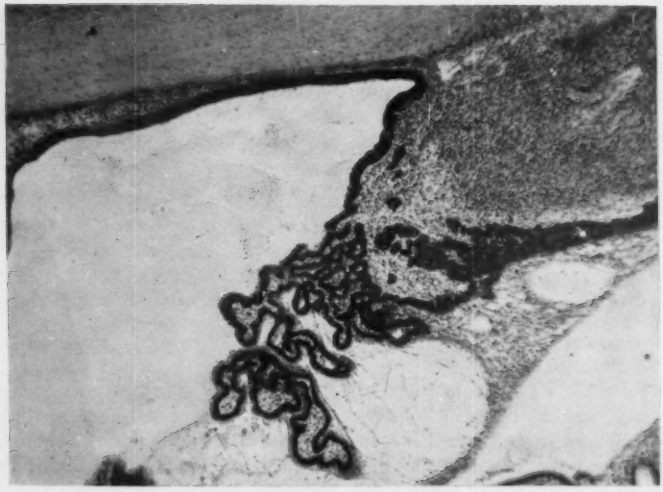

FIG. 1—Total synechia obliterating the anterior chamber.

Retina: One side shows detachment from the ora to the disc and is pulled by traction bands toward the wound.

Lens: Shrunken remnant of folded capsule and cortical material surrounded by a large mass of newly formed connective tissue and pigment.

Optic Nerve: Some telangiectatic formations of the blood vessels are seen (fig. 5).

Diagnosis: Hemangioma of choroid, buphthalmos, iridencleisis, retinal detachment, choroidal detachment, and angiomatous lesions of the optic nerve of the left eye.

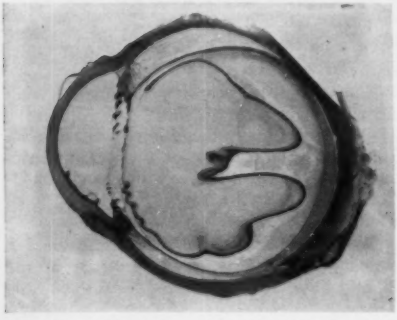

FIG. 2—Hemangioma of the choroid. (Loupe.)

At about the time of this first examination, twitching movements of the right hand and foot were observed. These were associated with intermittent seizures, mostly of the jacksonian type, which in the subsequent years were well controlled with anticonvulsive therapy. Electroencephalograms made when the child was 13 months of age, and again a month later, showed high-voltage waves (1 to 6 per second) on the right, and low-voltage slow waves on the left side. Results of roentgenologic examination of the skull at this age were negative, and a pneumoencephalogram revealed extensive cortical atrophy, more marked on the left side.

A neurological examination when the child had reached the age of 3 years and 2 months revealed an inability to walk, but there were no involuntary movements or abnormal postural attitudes. The general trophic conditions were fair, with the exception of the left sternocleidomastoid muscle, which appeared hypoplastic. The patient spoke only nonunderstandable syllables. The biceps,

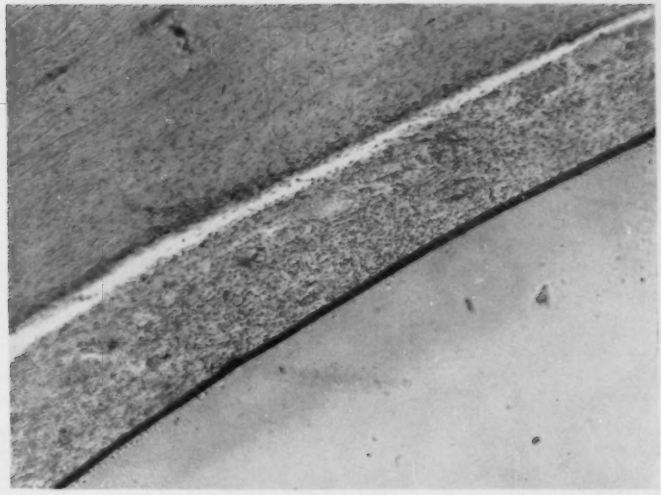

FIG. 3—Hemangioma of choroid. (Low power)

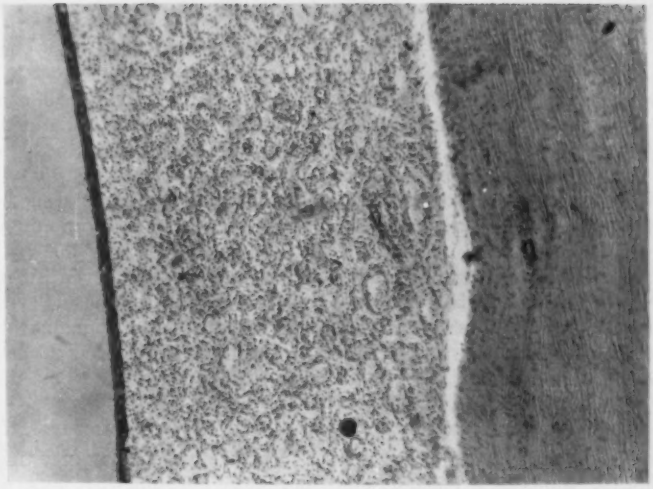

FIG. 4—Hemangioma of choroid. (High power)

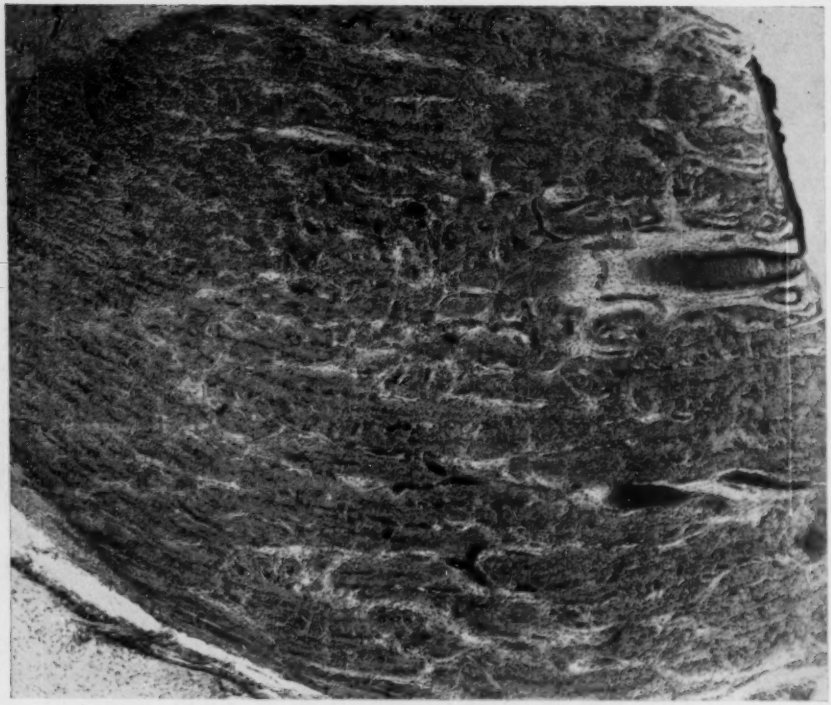

FIG. 5—Telangiectatic formations in the blood vessels of the optic nerve.

radial and triceps reflexes were equal and active on both sides. Both patellar reflexes were very active. The right Achilles tendon reflex showed transient clonus, while the left was very active. Superficial reflexes were present, equal, and active. There was no evidence of meningeal irritation. Sensory examination revealed that the sensitivity to touch and pain was normal. No abnormalities were noted in the cranial nerves. The right eye was entirely normal.

Laboratory findings, including results of hematologic tests, tests of blood chemistry and spinal tests, were essentially within normal limits. Encephalograms showed from two to four waves per second throughout the entire right cerebral hemisphere, with abnormality most marked in the left occipital region.

The results of physical examination after the patient was admitted to Willowbrook School confirmed, essentially, the findings of other institutions. Roentgenological examination failed to reveal any evidence of calcification in the brain.

The patient's life in the Willowbrook State School was uneventful until February 1954, when signs and symptoms of bilateral bronchopneumonia developed. He expired on February 22, 1954, at the age of three years and nine months.

SUMMARY OF POSTMORTEM FINDINGS

The body was that of a fairly well-developed but somewhat undernourished, white male. Weight was 9.35 kg. and the length was 92 cm., in contrast to 18.43 kg. and 102.2 cm., respectively, for an average four-year-old male.

The hair was light brown and showed normal implantation. The right eye was not remarkable; the iris was blue. The left eye was missing. A very pronounced reddish discoloration covered a large area on the face, principally on the left side of the face and scalp. It was more noticeable in the periorbital area and on the forehead, and was somewhat less distinct on the left vortex. Fine telangiectatic spots covered another region which involved the nose and was separate from the previously described area of discoloration. No nevi were observed in any other area on the external surface. The occipital regions were unusually flat. The fontanelles were closed, and the suture lines showed some asymmetry.

When the skull was opened, it was noted that the dura was rather adherent to the bony structures, and on its left side dilated blood vessels formed a fairly large and rather well-defined reddish area. This was medially located and corresponded to the posterior third of the frontal lobe and the anterior third of the parietal lobe. The dura was nonadherent to the leptomeninges.

The brain itself was easily delivered from the cranial vault. It weighed 840 gm. (average weight of the brain for a four-year-old male is 1175 gm.). The left hemisphere was much smaller, corresponding in volume to about two thirds of the right hemisphere (fig. 6). Its consistency was much firmer than is usual, and the entire surface was flaming red. However, at that time the impression was that this was due mainly to increased vascularization of the leptomeninges rather than to cortical involvement. The lateral surface presented a deep, well-marked, and grayish-white sulcus, which corresponded roughly to the anterior portion of the temporal lobe. The ventral aspect of the brain, with the exception of the left hemisphere, was not remarkable. The anatomic landmarks were easily identified, and anomalies other than those mentioned above were not noted.

FIG. 6—Left hemisphere has two-thirds the volume of the right hemisphere.

Postmortem examination of the soft tissue of the brain revealed a slight calcification, following the gyral pattern, in the region of the occipital lobe of the left hemisphere. The calcification was apparently on the external surface of the hemisphere.

The scrotum was present, only as an oval-shaped elevation; the testes were undescended, and they appeared atrophic.

The lungs presented congestion, atelectasis, and some consolidation. The liver was light brown and had a somewhat fatty appearance. The appearance of the rest of the organs, including the thyroid, heart, aorta and the great vessels, gastrointestinal tract, thymus, gallbladder, pancreas, spleen, adrenals, and kidneys was not unusual.

Microscopic Findings

Histologic examination of the various organs disclosed angiomatous formations in the leptomeninges, upper cortical and subcortical layers of the brain, lungs, thymus, spleen, testes, lymph nodes and pituitary gland. In addition, a well-marked fatty degeneration of the liver was found. A detailed study of the histopathologic findings in the viscera and central nervous system will be reported separately in the near future.

COMMENT

This congenital widespread anomaly is usually characterized by the association of an intracranial and a facial angioma with unilateral glaucoma. Falls suggests that inheritance is possibly of irregular dominance.

The intracranial lesions are usually thought of as involving, primarily, the meninges and the intracerebral vessels and not the neural tissue. Attention is called to the fact that the calcification of the vessels occurs only in the brain and not elsewhere.

Sturge suspected the presence of an intracranial angioma because of the contralateral epileptic seizures of the jacksonian type. Kalischer was the first to perform an autopsy on such a patient; he found a meningeal angioma. The clinical diagnosis was first made by Cushing. Weber demonstrated that the intracranial angioma could be diagnosed by its characteristic roentgenogram.[3] Krabbe showed that the roentgenogram shadows are caused by intracranial calcifications rather than by calcium deposits in the pial angioma.[2] Dimitri called attention to the neuropathological finding.[1]

The lesion is congenital. The facial component is noted at birth; the other features of this syndrome appear in infancy or early childhood.

The most characteristic intracranial manifestations are unilateral foci of calcification in the occipital lobe and, rarely, in the cerebellum. The calcium is located in the walls of the blood vessels and is associated with atrophy of the adjacent nervous tissue and loss of nerve cells in various areas of the cortex on the ipsilateral side. In such areas calcific concretions, variable in shape and size, are found intermixed with the various morphologic constituents of the nervous tissue.

In most of the cases pial angiomas have been found in the region in which the intracranial calcifications are located. These angiomas are usually of the racemose type and consist of dilated and hypertrophied vessels. The pial angioma is considered by some authors to be the primary intracranial lesion precipitating intracerebral calcifications. Calcification in the occipital lobe may cause hemianopsia.

Bilateral facial angiomas may be combined with unilateral or bilateral glaucoma. The angioma may be of the telan-

giectatic or the cavernous type. It usually is dark red, is flat, and does not raise the skin.

Hydrophthalmos with maldevelopment of the filtration angle may be found. In bilateral facial hemangioma, the hydrophthalmos may be unilateral or bilateral.

Angioma of the choroid is the most consistent pathologic feature found in these specimens. Roentgenograms of the brain show double-contoured, tortuous lines.

Some have spoken of this syndrome as encephalofacial angiomatosis because of its occurrence throughout the distributions of one or more divisions of the trigeminal nerve and the presence of a meningeal angioma in an area with innervation corresponding to that of the affected part of the face.

Interest in the present case centers on the finding of angiomatous formations not only in the leptomeninges and upper and subcortical layers of the brain, but also in lungs, thymus, spleen, testes, lymph nodes, and pituitary gland.

SUMMARY

If complete autopsies, by other observers on similar cases, show angiomatous changes to be as generalized as they are in this case, then in referring to this syndrome we should speak not of encephalofacial angiomatosis, but rather of diffuse angiomatosis.

REFERENCES

1. Dimitri, V.: Tumor cerebral congenito, Rev. Asoc. méd. argent., 36:63, 1923.
2. Krabbe, Knude H.: Facial and meningeal angiomatosis associated with calcifications of the brain cortex, a clinical and anatomopathologic contribution, Arch. Neurol. & Psychiat., 32:737-755 (Oct.) 1934.
3. Weber, F. Parkes: Right-sided hemi-hypotrophy resulting from right-sided congenital spastic hemiplegia, with a morbid condition of the left side of the brain, revealed by radiograms, J. Neurol. & Psychopath., 3:134-139 (Aug.) 1922.

Symposium: Disorders of the Salivary Glands

THE COMMON AND UNCOMMON DISORDERS

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DISEASE of the major salivary glands is not uncommon, and establishing the diagnosis and instituting the proper treatment often are simple matters. In many cases, a careful history and clinical examination are all that are required to make a diagnosis. In others, the medical history and clinical examination may suggest a diagnosis, but it cannot be accurately ascertained until further information about the nature of the pathologic process involving the gland is obtained by probing the duct, by studying suitable roentgenograms, including sialograms when indicated, and, on occasion, by performing a biopsy. Assessment of the additional information obtained from such studies as may be required usually permits an exact diagnosis to be established.

DEVELOPMENTAL DISTURBANCES

Congenital abnormalities of the salivary glands are rare. Any conceivable malformation may occur, ranging from complete absence of glands to failure of one or more to develop to full maturity; they may appear as fistulas, cysts, or obliteration of the ducts. Congenital tumors, such as hemangiomas and lymphangiomas, occasionally involve a salivary gland and may almost entirely replace the glandular tissue. A branchiogenic cyst may be mistaken for either a congenital or an acquired cyst of a salivary gland, but its true nature will be ascertained if the stalk is dissected to its termination. Aberrant salivary gland tissue is often found in the mouth and lips; it may also be situated in the eyelids, eyebrows, and skin of the face and neck.

The diagnosis of most of the developmental defects of the salivary glands is often self-evident. In some instances, however, when the diagnosis cannot be determined from the history and clinical and roentgen examinations, and when the symptoms justify such a procedure, the diagnosis must depend upon exploratory operation.

The treatment of these lesions, other than total absence of a gland, is best accomplished by an adequate surgical procedure. Radiation therapy, in my experience, has proved to be ineffective in controlling congenital tumors or fistulas. Similarly, sclerosing or electrocoagulating therapy of fistulas has, more often than not, proved to be fruitless and has made subsequent surgical excision more difficult. Excision of every nodule of obscure origin which is situated beneath the mucous membrane of the mouth or lips is necessary if malignant degeneration of aberrant salivary gland tissue is to be minimized.

DISTURBANCES OF SECRETION

The function of the salivary glands is to produce saliva. It has been calculated

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that the normal production of saliva in the human, during a twenty-four-hour period is about 1500 cc., of which about 69 per cent is contributed by the submaxillary glands. The normal amount of salivary secretion is so constantly present in the mouth that we are likely to fail to appreciate its contributions to our comfort, our health, and our ingestion of food. However, if any alteration occurs in the production of saliva or in our ability to swallow it normally, we immediately become aware of it.

Excessive salivation, or sialorrhea, is manifest by drooling from the corners of the mouth and by frequent swallowing. It may be only apparent if an individual does not regularly swallow saliva that is secreted in normal amounts. This is most commonly encountered as a symptom in patients who have painful lesions of the mouth or throat, paralysis of the tongue or pharyngeal constrictor muscles, or stenosis or obstruction of the esophagus. True sialorrhea is encountered less frequently, and it probably occurs as a result of reflex stimulation of the salivary glands. It is normal in the infant. In the literature, sialorrhea has been attributed to diabetes and disease of the stomach or pancreas. In a rather extensive clinical practice, however, neither my confreres nor I have encountered sialorrhea of any significant degree which was considered to be due to these conditions. It commonly is a symptom of irritation of the tongue from jagged teeth, poorly fitting dental appliances, and inflammation. Patients with organic disease of the central nervous system, such as motion sickness, tic douloureux, paralysis agitans, or encephalitis lethargica, as well as those with mental illness, such as schizophrenia, may exhibit troublesome sialorrhea. It is also encountered in advanced nutritional deficiencies such as scurvy and pellagra and often follows severe emotional stress.

Xerostomia, the antithesis of sialorrhea, is the term applied when salivary secretion is absent or markedly diminished in quantity. As a result, the mucous membrane of the mouth and tongue is either dry or moistened to a variable degree by saliva which is sticky in consistency when touched with a throat stick. Little secretion can be expressed from the principal salivary ducts, and this secretion may be more viscid than normal. A common complaint of patients so afflicted is difficulty in masticating and swallowing food.

Idiopathic xerostomia is a rare condition which is most commonly seen in elderly women. Its cause is unknown, the onset is insidious and progressive, and once established, idiopathic xerostomia is permanent and irreversible. Acquired xerostomia is usually temporary, although when it follows radiation therapy for malignant disease of the nasopharynx, the paranasal sinuses or the salivary glands, it may be more or less permanent. Drugs such as belladonna, Chlor-Trimeton®, and the opium derivatives, when administered therapeutically for disease, may cause a transitory decrease in the secretion of saliva. The dryness of the mouth which is a frequent complaint of patients who have severe emotional disturbances is usually a subjective symptom, but in some instances there may be an actual decrease in salivary secretion. This is also true in cases of manic-depressive psychosis. Xerostomia is frequently associated with severe systemic infections and other diseases which may cause either unrecognized or inadequately treated dehydration, such as those of the liver or kidneys, diabetes mellitus, diabetes insipidus, typhoid fever, cholera, ulcerative colitis, and systemic viral disease.

The treatment of sialorrhea and xerostomia is primarily that of the underlying disease of which they are symptoms. Specific therapy, in the form of

astringent mouth washes, and the judicious use of small doses of atropine may be helpful in minimizing the annoyance a patient experiences from sialorrhea. Idiopathic xerostomia, in my experience, fails to respond to any form of treatment intended to increase the secretion of saliva. Since sialography in this condition demonstrates atrophy of the secretory elements of the gland, this is understandable. Consequently, treatment is limited to improvement in the oral hygiene, the use of soothing mouth washes, such as those containing glycerin and supplementary vitamins, and a diet to improve the nutritional status. Similar therapy is also beneficial in acquired xerostomia. In addition, augmenting the fluid intake by drinking unsweetened lemonade, chewing gum, or sucking a lemon may be beneficial in acquired xerostomia. Nicotinic acid in sufficient dosage to produce mild flushing or a sensation of warmth, or pilocarpine in therapeutic doses to stimulate the salivary glands, may increase the salivary flow. The effect of the latter drug seems to be augmented by the simultaneous ingestion of ammonium chloride and by the restriction of alkalies in the diet.

CALCULI AND STRICTURES

Salivary calculi are not rare. They are most frequently located in the submaxillary gland or its duct; probably because the secretion of this gland has a greater viscosity and protein content than that of the other salivary glands, and because the rate of flow of its secretion is slower, due to the fact that its duct is longer and the body of the gland is situated below the level of the buccal orifice of the duct. Calculi are composed primarily of calcium salts, and although their origin is controversial, investigation suggests that they result from the deposition of calcium salts about a nidus of bacteria or precipitated mucin. A calculus located in the principal duct of a salivary gland produces symptoms characteristic of obstruction of the duct. The onset is usually associated with the ingestion of food and is ushered in by pain, followed by progressive enlargement and tenderness of the involved gland. These symptoms usually subside completely following the initial attack. As further attacks are experienced, the pain becomes less intense, the tenderness constant and more pronounced, and the swelling of the gland never entirely recedes. Secondary infection, in some degree, almost invariably occurs with recurrent obstruction, and purulent material can be expressed from the duct. On occasion, a calculus may be extruded spontaneously from the duct. When this occurs, relief is obtained from the acute symptoms of obstruction, but it may be followed by persistent enlargement of the gland and tenderness when eating, as a result of the development of an inflammatory stricture at the site originally occupied by the calculus, which interferes with the normal flow of saliva from the gland.

Calculi within the substance of a salivary gland are likely to be larger than ductal stones and frequently are multiple. Although they may produce symptoms similar to duct calculi, the symptoms are usually less severe. They are more likely to be associated with chronic infection of the gland, and the most prominent symptoms are those of inflammation of the gland rather than those caused by obstruction to the flow of saliva from the gland. Purulent material may be observed as flakes in clear secretion expressible from the duct or as intermittent clumps of cloudy, thickened secretion alternating with what appears to be normal saliva. When the infection is more severe, frank pus can be expressed from the duct. If the infectious process is allowed to proceed without interference, or progresses in spite of therapy, the development of local abscesses and

cellulitis is inevitable. Under such circumstances, large calculi located in the deep portion of the submaxillary gland may, on occasion, erode through the adjacent muscles and mucous membrane of the floor of the mouth.

Calculi located in a duct, particularly when situated near the duct orifice, are usually palpable through the buccal mucosa. When they are situated in the substance of the gland, however, they cannot be palpated unless they are large or are incorporated in the buccal surface of the submaxillary gland. In most instances, the history is characteristic, and when coupled with a stone that can be palpated with the finger tip or with a probe in the duct, the diagnosis is certain. When a stone cannot be palpated, roentgenograms, including an intraoral occlusal film of the suspected gland and duct, often will demonstrate the calculus. Not all calculi are of sufficient density to be radiopaque, however, and when routine roentgen examination fails to demonstrate a suspected calculus, sialography will be successful in establishing the presence of a nonopaque calculus or of a stricture.

Calculi in the duct of the submaxillary or parotid gland can usually be removed intraorally without difficulty if they are situated completely within the duct. Minute calculi may be expressed from the duct following dilatation of the duct with lacrimal dilators. When the calculi are larger and cannot be removed by simple dilatation, a linear incision of the duct, using as a guide the largest lacrimal dilator that can be passed, will permit deliverance of the stone. This latter procedure also serves to rectify partial obstruction of a salivary duct secondary to stricture formation. When larger stones are situated in the submaxillary duct, near its junction with the gland, or are in the substance of the gland but are palpable just beneath the mucous membrane of the floor of the mouth, removal through an intraoral approach is possible but more difficult, and it is attended by possible injury of the lingual nerve and the spread of infection. If intraoral removal of the calculus is attempted, care must be taken to prevent the calculus from being pushed farther into the substance of the gland, by passing a traction suture through the mucous membrane and substance of the gland posterior to the stone. When this has been accomplished, incision of the mucous membrane and gland substance directly over the surface of the calculus will frequently permit removal of the stone with forceps. If this procedure is unsuccessful, excision of the submaxillary gland and its contained calculus is indicated. Furthermore, if multiple calculi are present in the substance of the gland, or if calculi reappear in the duct following previous removal, excision of the submaxillary gland is the treatment of choice. Calculi situated in the substance of the parotid gland are usually located near the beginning of Stensen's duct and are best removed through an external approach directly over the suspected location of the stone. In every instance in which an acute infectious process is associated with calculus formation, the acute process should be controlled by antibiotics or other measures before surgical procedures are instituted.

INFLAMMATION

Mumps, or acute epidemic parotitis, the classic example of inflammatory disease of the salivary glands, requires no discussion at this time, for it is a contagious disease which usually occurs in epidemics and rarely poses a problem in diagnosis or management. It is well to remember, however, that it may occur in the absence of an epidemic and that the submaxillary gland rather than the parotid gland may occasionally be involved. Under such circumstances, a dif-

ferential count of the leukocytes in the blood, which usually reveals a lymphocytosis in the presence of mumps, together with complement fixation and skin tests, may be of help in establishing the diagnosis or in differentiating mumps from an acute sialadenitis of bacterial origin.

Inflammation of the salivary glands of bacterial origin may be acute or chronic. The parotid gland is most commonly involved unless the suppurative process is secondary to a calculus, in which case the submaxillary gland is more frequently implicated because of the predilection of this gland for calculus formation. Acute parotitis, in my experience, has almost invariably been the sequel to dehydration in patients subjected to major abdominal operation or severe debilitating illness and in whom a lowered resistance to infection probably has contributed to the establishment of the infection. Usually only one of the parotid glands is involved by the inflammatory process, although on occasion both may be affected. The onset is sudden and is usually first noted by the patient as a tender swelling at the angle of the mandible, which progressively increases in size and becomes painful. Fever is present and the skin overlying the gland becomes tense, reddened, and shiny. Inspection of the mouth reveals the quantity of saliva to be less than normal and sticky in consistency, and the papilla of the duct is reddened and pouting. On palpation, the swollen gland is hot and exquisitely tender, and when pressure is exerted from the back of the gland toward its duct, pus is expressed from its orifice.

The treatment of acute suppuration of the parotid gland which I have found most effective consists of correcting the underlying contributory dehydration and instituting adequate antibiotic therapy. Initially, a broad-spectrum antibiotic is given intravenously. Thereafter it is administered orally or intramuscularly until reports on the cultures and sensitivity tests of the purulent secretion expressed from the parotid duct are obtained. If these tests indicate that another antibiotic preparation might prove more effective, the treatment is changed. In addition, hot compresses are applied to the swollen gland and the patient is shown how to "milk" the gland. He is urged to do this several times a day. Roentgen therapy, in my experience, has been of little, if any, benefit in treating such patients.

Surgical intervention is rarely necessary, but when localized abscess formation occurs, it is indicated and can be accomplished without danger to the facial nerve. The parotid gland is easily exposed by reflecting the skin and subcutaneous tissue forward from an incision in the pretragal crease, beginning at the temporomandibular joint and extending inferiorly to terminate 2 or 3 cm. anterior to and below the angle of the mandible. Once the lateral surface of the gland has been exposed, numerous incisions are made in the substance of the gland paralleling the course of the branches of the facial nerve. These incisions are then deepened and enlarged with blunt forceps to facilitate drainage. The wound is allowed to remain open, and secondary closure is effected when the suppurative process has subsided.

Acute sialadenitis of the submaxillary gland, in my experience, has almost always been secondary to calculus formation. If the stone is accessible and can easily be removed, the suppuration usually subsides rapidly. If phlegmon of the adjacent tissues is associated with the suppurative process, however, medical treatment similar to that described for acute parotitis should be instituted and the more acute phase of the inflammatory process allowed to subside before any attempt is made to remove the stone surgically.

Chronic suppuration of the parotid gland occurs relatively infrequently. When present, however, it proves to be exceedingly troublesome to the patient and is characterized by acute exacerbations of the suppurative process alternating with periods of relative quiescence. Its cause is unknown, but failure of an initial acute inflammatory process of the gland to subside completely or obstruction to the normal flow of saliva through the duct by a stricture, a small unrecognized calculus, or a tumor of the duct is probably contributory. If the patient is seen during a quiescent stage, the gland may be only slightly enlarged and indurated with purulent secretion mixed with clear saliva, expressible from the duct. When the patient is suffering from an acute exacerbation, however, it cannot be differentiated from an original acute parotitis except by the history of similar recurrent attacks.

Sialograms made in cases of chronic suppurative disease of the parotid gland always demonstrate some abnormality of the duct or the gland. There is no need for me to discuss, at this time, the technique of sialography or the pathologic conditions that may be demonstrated when sialography is properly performed; Dr. Blatt and Dr. Maxwell will amply cover these subjects in their part of this symposium.

Treatment of chronic parotitis is difficult and often unsatisfactory. Even when an abnormality of the parotid duct, such as a stricture, can be eliminated, the suppurative process may be so well established in the gland substance that although the symptoms are improved, a cure may not be obtained. Prolonged antibiotic therapy based on culture and sensitivity tests frequently causes temporary abatement of the inflammatory process and occasionally results in a cure. Frequent "milking" of the gland and occasional irrigations of the duct appear to be helpful in reducing the frequency of acute exacerbations of the infection. When all else fails and the patient demands permanent relief from his symptoms even though mild paresis of the facial nerve may ensue, total parotidectomy will effect a cure.

Chronic suppuration of the submaxillary gland is invariably the result of recurrent calculus formation or of extensive irreversible damage to the gland substance from a previous calculus. The treatment of choice is excision of the submaxillary gland.

TUMORS

Tumors of the salivary glands are not common, but neither are they rare. The majority of these neoplasms are situated in the parotid gland and are benign. Clinical differentiation between benign and malignant tumors of the salivary glands is usually not possible preoperatively, although benignity or malignancy of the lesion may be suspect. Malignant tumors are usually firmer and have a greater tendency to be fixed to the adjacent tissues than do those that are benign. Pain occurs much more frequently as a symptom of malignant disease but cannot be relied upon for differential diagnosis, as it may be present when the tumor is benign. Facial paralysis, however, is usually a preoperative indication of malignant disease, for it indicates that the neoplastic disease has infiltrated the facial nerve. This is true, however, only if paralysis from a prior operation or Bell's palsy can be excluded.

Mixed tumor is the commonest neoplasm affecting the salivary glands. Although this tumor generally is considered by the pathologist to be a benign neoplasm, it is my opinion that it more correctly should be considered a locally malignant lesion because of its great propensity for recurrence. For this rea-

son it is important that every vestige of the tumor be removed at the time of the initial operation. The surgical management of mixed tumors is applicable to all benign tumors of the salivary glands. This should consist of wide exposure of the involved gland so that complete excision of the tumor, together with a wide margin of grossly normal salivary gland tissue surrounding it, may be accomplished. It is not possible for the excised tumor to be entirely encased in salivary gland tissue when a part of the capsule of the tumor contacts the facial nerve or when the tumor is very large, but this method of excision is less likely to be followed by recurrent disease than any other method with the possible exception of total parotidectomy.

The submaxillary gland is involved by primary neoplastic disease much less frequently than the parotid gland. When a benign tumor of this gland is present, its adequate removal is facilitated by complete removal of the submaxillary gland.

When the tumor is situated in the parotid gland, every effort should be made to preserve the facial nerve, insofar as this is compatible with adequate excision of the tumor. This can best be accomplished by exposing the nerve and mobilizing it so that it may be kept out of the way while the tumor is being excised, thus avoiding a permanent paralysis of the face. On rare occasions, when a relatively large tumor arises in the so-called deep lobe of the parotid gland and the facial nerve is stretched out over its lateral surface, it may be necessary to section one or more branches of the nerve in order to permit adequate removal of the tumor. When this is necessary, the sectioned ends of the nerve should be sutured together with 6-0 black silk to minimize the residual facial palsy.

Malignant tumors of the salivary glands do not occur as frequently as benign tumors. Malignant tumors are more difficult to manage successfully and are primarily of epithelial origin, although on rare occasions sarcomas may be encountered in these locations. Biopsy of a salivary gland tumor in order to establish diagnosis prior to definitive surgical treatment is usually contraindicated, for any surgical procedure should be instituted with the intention of eradicating the neoplasm. If at operation, however, the benignity or malignancy of the lesion is questioned, biopsy is indicated.

If the findings at operation confirm the preoperative impression of malignant disease, or if the frozen section unequivocally establishes the neoplasm as malignant, a more radical surgical procedure than that for benign tumors must be employed in an effort to effect a cure. The extent of this more radical procedure is influenced to a considerable degree by evidence of local invasion or lymphogenous spread as manifested by preoperative nonsurgical facial paralysis and cervical lymph node involvement. In general, these indicate the necessity for total excision of the gland, including resection of the facial nerve when the parotid gland is involved by malignant disease, and a radical neck dissection in continuity if the best opportunity for eradication of the disease is to be offered the patient. When the facial nerve has been sacrificed it should be reconstructed, either as a part of the original operation or about a week later, in order that the patient may obtain relief from the facial palsy.

Unfortunately, there are instances in which it is impossible to excise all of the malignant disease because of involvement of adjacent structures which cannot be resected. This is particularly true when malignant disease invades the styloid group of muscles and the base

of the skull. In addition, there are rare instances in which an encapsulated tumor, which is thought to be benign, is removed and is subsequently reported by the pathologist as a malignant neoplasm. Under such circumstances radiation therapy is indicated. My experience, during the past five years, with therapy using 2 million volts of radiation suggests that it may be a valuable adjunct to the management of such lesions when the greater part of the tumor has been excised.

MISCELLANEOUS CONDITIONS

A number of miscellaneous conditions which may produce enlargement of the salivary glands occur infrequently. These affect the parotid gland most often, but they occasionally involve the submaxillary or sublingual glands. In recent literature, recurrent nonsuppurative swelling of the salivary glands has been attributed to an allergic factor. Although I have yet to see a patient with recurrent swelling of the parotid gland whose secretion exhibited eosinophilia, it is possible that such allergic manifestations do occur.

Chronic asymptomatic enlargement of the salivary glands without gross evidence of inflammation may be due to a number of conditions. Chronic hyperplastic enlargement of one or more of the salivary glands in my experience has occurred only in the submaxillary gland and is probably the result of familial or functional hyperplasia, although just why this should occur is not known. Treatment of this condition is not necessary if enlargement by tumor can be excluded, although biopsy and, on rare occasions, excision of the gland may be necessary to establish this point definitely. Enlargement of the salivary glands and ducts is seen occasionally in glass blowers and in musicians who play wind instruments. These cases require no treatment and are of interest only in that they occur as a result of an occupation. Occasionally, a lymphoma, a branchial cyst, a neurofibroma of the facial nerve, or a neurinoma arising from the nerves in the sublingual region will produce enlargement of a salivary gland. Their differentiation from specific disease of the gland can be established only by surgical intervention.

Mikulicz's disease is a rare condition characterized by symmetrical, progressive, painless enlargement of the parotid and lacrimal glands. The lacrimal glands are usually involved first, and for this reason patients with this disease are usually first seen by the ophthalmologist. The parotid glands may be enlarged, however, without involvement of the lacrimal glands, and when this occurs the patient consults a surgeon or an otolaryngologist. A positive diagnosis can be established only by biopsy. Treatment is usually required for cosmetic reasons only, and satisfactory reduction in the size of the parotid swellings can be obtained by total parotidectomy or roentgen therapy, the latter being the treatment of choice. The cause of this condition is unknown, and there is evidence to suggest that it is a less highly developed variant of a larger symptom complex known as Sjögren's syndrome. The latter syndrome usually affects women during the menopause and is characterized by the presence of keratoconjunctivitis, enlargement or atrophy of the parotid glands, dryness of the mucous membranes of the nose, mouth, and throat, and rheumatoid arthritis. No treatment known to me has proved successful in reversing the pathologic changes present. Uveoparotitis, or Heerfordt's disease, is a comparatively rare affection characterized by firm, painless enlargement of the parotid glands, with inflammation of both uveal tracts and a persistent low-grade fever. These symptoms are frequently accompanied by facial paralysis and irregular constitutional symptoms. The etiologic agent is un-

known, but the condition is generally believed to be a manifestation of sarcoidosis. Treatment is largely confined to symptomatic relief, although cortisone may prove beneficial in some instances. Usually spontaneous recovery may be anticipated in the majority of instances, although visual impairment may persist.

Lacerations of the parotid gland resulting in fistula formation and facial paralysis deserve mention. When an individual who has suffered a laceration of the face exhibits a facial paralysis or leakage of saliva from the wound, the wound should be explored with the intention of repairing the severed facial nerve and the salivary fistula. This is best accomplished when the initial repair of the laceration is effected. Delayed repair of the facial nerve is tedious and often difficult, but the improvement in the facial paralysis that can be obtained more than justifies the painstaking work involved. Salivary fistulas that are seen after the laceration is healed are best eradicated by excision of the fistulous tract. The resultant defect in the parotid gland is ablated by suturing the gland together, without drainage. In my experience, this has proved to be a more satisfactory form of treatment than radiation therapy for salivary fistulas.

SUMMARY

Disease of the major salivary glands is not uncommon. In the majority of instances this is due either to a disturbance in the development or the function of the gland or to its involvement by calculus formation, inflammation, or neoplastic process. Occasionally it may be the result of tumors arising from the nerves, blood vessels, or lymphatics contained in the gland, or, in rare instances, it may be a manifestation of an obscure condition of unknown origin, such as Mikulicz's disease, Sjögren's syndrome, or uveoparotid fever. In addition, a salivary fistula and paralysis of the face may be the residual of a facial laceration which involved a salivary gland.

Congenital anomalies are rare and are best treated by surgical intervention. Significant secretory disturbances of the glands occur infrequently, but on occasion sialorrhea may be a prominent symptom of local disease of the mouth or paralysis of the vagus nerve. Xerostomia, whether idiopathic or acquired, is a troublesome condition, and its response to treatment frequently is unsatisfactory. Calculi occur most commonly in the submaxillary gland or its duct. They should be removed surgically through an intraoral or an external approach, depending upon the location of the stone and gland involved; but when recurrent or multiple calculi affect the submaxillary gland, excision of the gland is the treatment of choice. Acute inflammations occur most frequently in the parotid gland and usually respond satisfactorily to adequate hydration and antibiotic therapy. Chronic suppurative disease, on the other hand, often responds indifferently to medical measures. Surgical intervention may be required to remove an obstruction to the flow of saliva or to remove the entire gland in order to effect a cure.

Tumors that originate in the salivary gland are either benign or malignant, and their histopathologic classification is somewhat controversial among pathologists. The treatment of these tumors is adequate surgical excision. The parotid gland is most frequently involved by neoplastic disease and, in the majority of instances, the tumor is benign. Benign lesions, such as mixed tumors, should be removed with a wide margin of grossly normal tissue surrounding the tumor in order to minimize recurrence. Enucleation of such tumors is to be condemned and is contrary to the tenets of adequate tumor surgery. Malignant tumors require radical excision. As a rule, malignant disease of the salivary glands

necessitates complete removal of the involved gland and the immediate adjacent tissues insofar as possible, and a radical neck dissection. No attempt should be made to preserve the facial nerve except in rare instances, as it can subsequently be reconstructed to avoid a permanent facial paralysis.

DISCUSSION

DR. MAXWELL: Dr. Lathrop has given us an excellent outline of salivary gland disorders which I shall not attempt to discuss in detail and so deprive you of an opportunity to hear others who may wish to discuss the subject.

I do wish to emphasize his statements regarding the possible presence of subparotid branchiogenic cysts. In my opinion, some of these are first branchial pouch derivatives whose stalks may extend to the submucosa of the nasopharynx. It is advisable in these cases to do a parotidectomy first in order to permit complete resection of the cyst and its stalk.

Even though a parotid nodule may feel superficial and encapsulated, anyone undertaking its removal should be prepared to remove the entire gland and to do a nerve repair, since these procedures may be required if a cure is to be obtained.

Also, I wish to agree with Dr. Lathrop's admonition regarding biopsies of parotid tumors. A discrete tumor should be excised widely and completely at the first operation. More radical surgical procedures may then be considered if indicated on the basis of frozen sections or standard microscopic slide preparations.

Symposium: Disorders of the Salivary Glands

SECRETORY SIALOGRAPHY

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and
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SIALOGRAPHY, the x-ray visualization of the duct system of the salivary glands after the injection of radiopaque substances, has added to our diagnostic, pathologic, and therapeutic knowledge of diseases affecting these organs. The value of the procedure is well documented by the wide variety of clinical conditions in which the technique has been used.

Although sialography demonstrates the filling pattern of the salivary ducts in a manner comparable to a roentgen study of the tracheobronchial tree, no previous attempt has been made to evaluate emptying of the salivary glands as in, for example, the evacuation of the gall bladder after a fatty meal.

It would, therefore, appear that a modification of sialography that includes a filling and an emptying phase would be the more physiological method of studying the salivary glands radiographically.[3] This can be accomplished by injecting a contrast material which has low viscosity and is easily diffusible, such as Pantopaque® (ethyl iodophenylundecylate), which is readily washed out of the duct system when a flow of saliva is induced by a potent salivary stimulant, such as a slice of lemon.

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The important features of the technique are the use of a polyethylene catheter, a closed system of injection, and physiologic reflex stimulation of the salivary gland to evacuate the contrast material. The orifice of Stenson's duct is entered at the papilla of the buccal mucosa, opposite the second molar tooth; while the orifice of Wharton's duct is approached on either side of the base of the frenulum of the tongue. The mucous membranes surrounding the orifice may be anesthetized by topical application of a solution of cocaine hydrochloride, 10 per cent. Sterile instruments are used throughout the procedure.

The apparatus for sialography includes probes to ascertain the patency of the main duct lumen and for dilation of the duct orifice, a hypodermic syringe and needle, and a polyethylene catheter (fig. 1). Williams' olive-tipped and Bowman's blunt-tipped lacrimal probes, sizes 1 through 4, are inserted. A polyethylene catheter, PE 60, sterilized in 1:5000 aqueous benzalkonium chloride, is then inserted into the duct for a distance of 2 to 3 cm. This is done with the aid of a fine wire stylet onto which is threaded a section of polyethylene tubing, 8 to 10 cm. long. Care should be taken to avoid protrusion of the stylet beyond the open end of the polyethylene catheter.

A blunt 21-gauge needle on a 2-cc. syringe, filled with the contrast material,

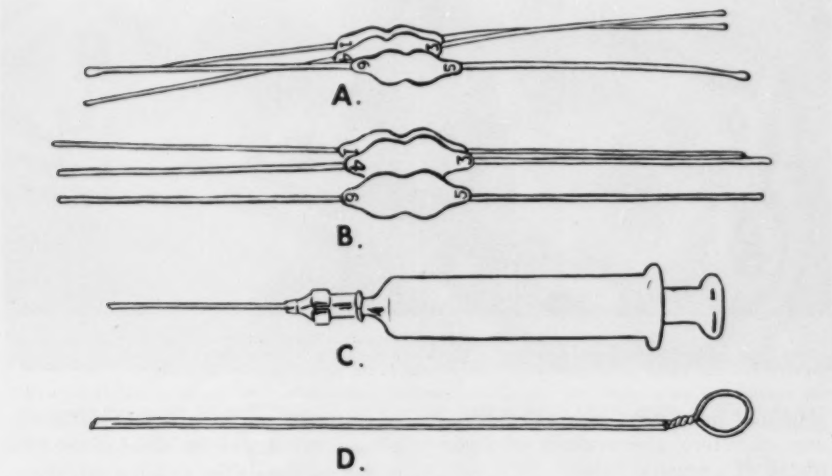

FIG. 1—Apparatus for sialography includes (A) Williams' olive-tipped probes, (B) Bowman's blunt-tipped probes, (C) a hypodermic syringe and needle, (D) a section of polyethylene tubing and a fine wire stylet.

Pantopaque®, is introduced into the open end of the plastic catheter. The injection is made slowly. In the majority of patients a definite pressure sensation occurs when 0.25 cc. to 0.50 cc. of contrast material has been injected into either the parotid or the submaxillary gland. The injection is stopped when the patient indicates that pain is present. This is the end point which indicates early acinar filling and beginning capsular distention.

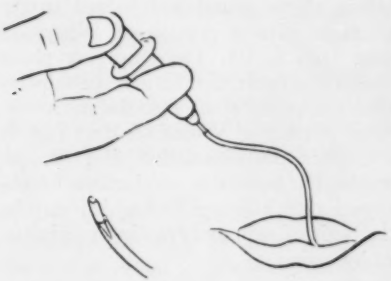

FIG. 2—Technique of injection. Contrast material has been injected through a plastic catheter inserted into the main duct orifice (left). A closed system of injection prevents escape of contrast material during filming and allows for facility in positioning the patient on the x-ray table.

The total amount of contrast material injected when the glands are diseased varies between 0.5 cc. and 1.5 cc. and rarely exceeds 2.0 cc. Upon completion of injection, the open end of the catheter is plugged with a wooden stopper (a toothpick), and roentgenograms are made (fig. 2). The catheter is then removed and the salivary gland is stimulated by the patient's chewing a slice of lemon, minted candy, or gum for one minute. Poststimulation roentgenograms are taken after the mouth has been rinsed. The ideally injected gland shows filling of the intercalary ducts and minimal delineation of the acini. The appearance of the normal duct system is that of a tree stripped of its leaves (fig. 3, A). Physiologic emptying is accomplished by reflex stimulation, and should be complete within five minutes in the normal functioning glands (fig. 3, B).

What are the indications for and applications of sialography? Briefly, sialography will demonstrate dilation, obstruction, displacement, and obliteration of the salivary ducts, as well as intra-

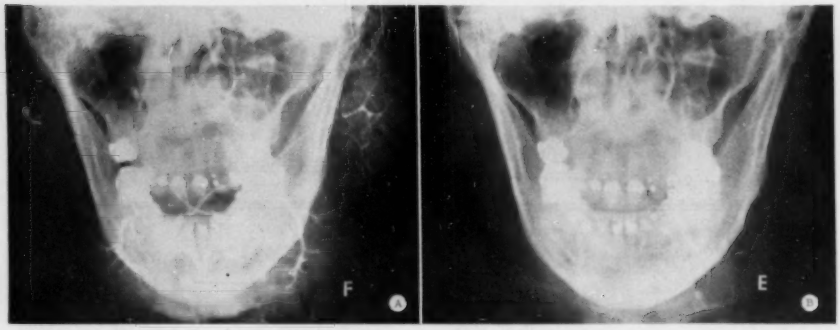

FIG. 3—(A) Simultaneous parotid and submaxillary sialograms demonstrate the arborization pattern of the normal duct system in the filling phase. (B) Physiologic emptying is accomplished by reflex stimulation of salivary flow and should be complete within five minutes in the normal functioning gland.

glandular inclusions, such as calculi. It may, therefore, give evidence of a positive or of a negative value.

When salivary calculi are considered, the submaxillary gland claims practically all the attention. It may be argued that it is unnecessary to employ sialography in the diagnosis of salivary calculi, as the plain roentgenogram will establish their presence. This argument is perfectly justifiable in this unusual instance—a 4-cm. calculus in the hilum of the submaxillary gland (fig. 4)—but this premise must be accepted with certain reservations. First, it has been pointed out that 20 per cent of salivary calculi are radiolucent[2]; secondly, a knowledge of the exact location and number of stones may be essential before treatment is decided upon. A sialogram would ascertain the exact position of the ill-defined, small calculus visualized with difficulty in figure 5, A. It is impossible to tell from this roentgenogram whether the stone is intraglandular or not, and bidigital palpation in the floor of the mouth or probing the duct fails to localize it. The filling phase demonstrates a calculus near the hilum of the gland and lodged in the proximal dilated portion of Wharton's duct (fig. 5, B). The emptying phase shows that upon stimulation, the salivary flow forces the stone into the narrower, distal portion of Wharton's duct (fig. 5, C). This poststimulation film demonstrates the ball-valve mechanism of obstruction to salivary flow which may be the basis of pain and swelling precipitated by eating.

FIG. 4—A 4 cm. calculus in the hilum of the submaxillary gland.

In the group of cases which fall under the heading of recurrent infection of noncalculous or nonobstructive origin, sialography may demonstrate cer-

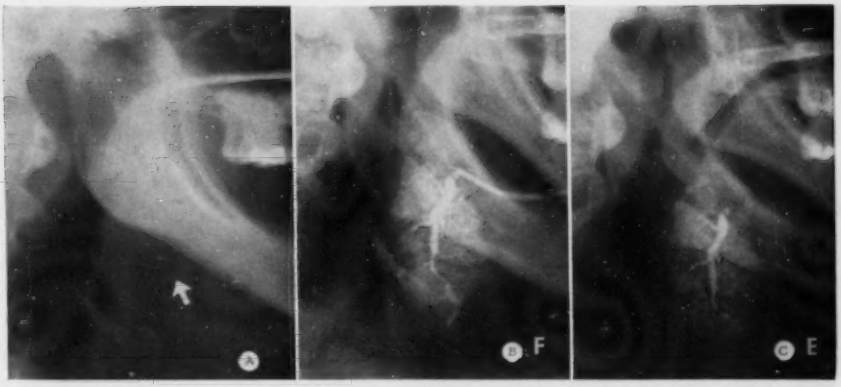

FIG. 5—(A) An ill-defined, small submaxillary calculus (arrow). (B) The filling phase demonstrates that the calculus is near the hilum of the gland and is lodged in the proximal, dilated portion of Wharton's duct. (C) The emptying phase shows that upon stimulation, the salivary flow forces the stone into the narrower, distal portion of Wharton's duct, which creates a ball-valve mechanism of obstruction.

tain well-defined lesions of the smaller ducts.[1] This heterogenous but clinically related group of diseases have a similar and characteristic sialographic-histologic pattern, known as sialectasis. These entities include Sjögren's syndrome, recurrent pyogenic parotitis in children and adults, and Mikulicz's disease. By studying the filling and emptying phases of sialography, the extent of the altered anatomicophysiologic pattern of sialectasis may be identified and classified into four stages:

1. Punctate sialectasis, in which the earliest findings are characterized by a diffuse punctate dilatation of the peripheral ducts (fig. 6, A).

2. Globular sialectasis, in which, in moderately advanced disease, the dilatation of the peripheral ducts increases, but with uniform size and distribution (fig. 6, B).

3. Cavitary sialectasis, in which there is coalescence of the globules, which now become irregular in size and distribution and decrease in number (fig. 6, C).

4. Destructive sialectasis, the end stage, in which there is a bizarre pattern which suggests invasion and destruction of the gland parenchyma by neoplasm. The differential point at this stage is the fact that other salivary glands, whether swollen or not, will show the manifestations of sialectasis (fig. 6, D).

Tumors in the region of the salivary glands are also of great interest to the otolaryngologist. The sialogram may be valuable in determining the relationship of such a swelling to the gland parenchyma. Is the neoplasm in or adjacent to the salivary gland; and if within the gland, is it circumscribed or encapsulated, or is the tumor invasive?

Secretory sialography is valuable in identifying tumors external to the salivary gland, since complete emptying of the salivary ducts and acini occurs immediately following stimulation. The filling phase of sialography shows normal arborization of the duct system, except that the duct system is displaced laterally (fig. 7, A). Evacuation of the contrast material is complete in the emptying phase (fig. 7, B). Utilization of the filling phase alone makes it difficult to distinguish external tumors from circumscribed intrinsic neoplasms, in which the glandular architecture is also preserved (fig. 8, A).

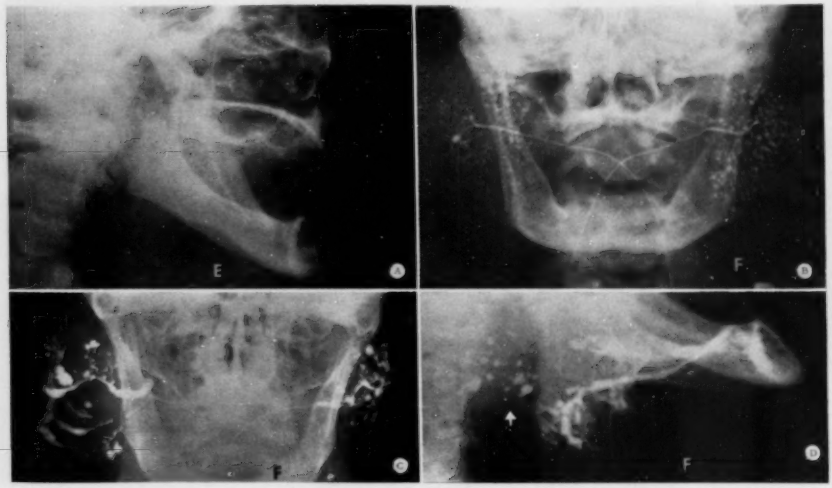

FIG. 6—(A) The emptying phase of diffuse punctate sialectasis. (B) The filling phase of globular sialectasis shows increased dilation of the peripheral ducts with uniform size and distribution of the globules. (C) Filling defects suggesting cystic dilation of the duct system are seen in cavitary sialectasis. (D) Bilateral submaxillary sialogram (filling phase) demonstrates the bizarre puddling and pooling pattern of destructive sialectasis. Globules of retained contrast material in the parotid glands are also visible (arrow).

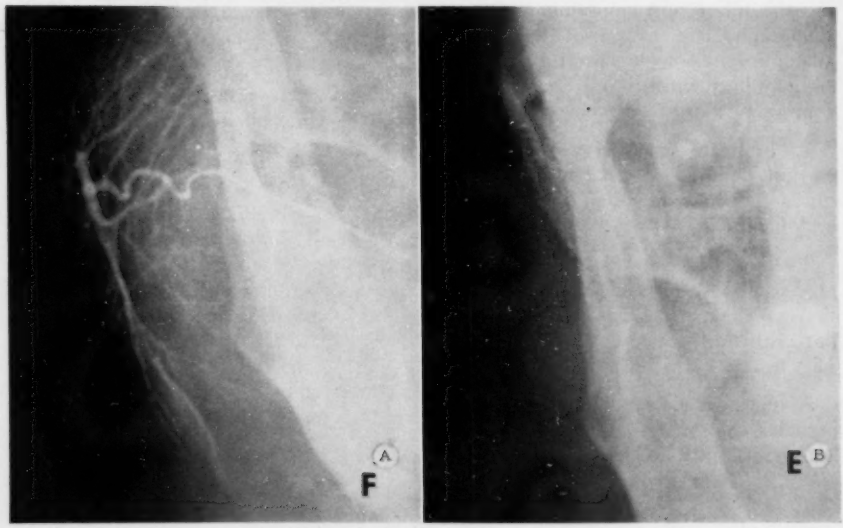

FIG. 7—(A) Tumors extrinsic to the salivary gland. The filling phase of sialography shows normal arborization of the duct system except that the duct system is displaced laterally. (B) Evacuation of the contrast material is complete in the emptying phase.

FIG. 8—(A) Intrinsic, circumscribed salivary gland tumor. Utilization of the filling phase alone makes it difficult to distinguish external tumors from circumscribed intrinsic neoplasms in which the glandular architecture is also preserved. (B) In the emptying phase, intrinsic circumscribed or encapsulated tumors demonstrate segmental intraglandular duct-retention patterns.

However, following reflex stimulation of the salivary glands that contain tumors, retention of contrast material in distinguishable patterns is noted. The normal gland tissue is compressed between the slowly growing encapsulated or circumscribed neoplasm and the capsule of the gland. This results in patterns which are characterized by some segmental intraglandular duct retention (fig. 8, B).

Infiltrative malignant neoplasms of the salivary glands may disrupt the glandular architecture and destroy the duct system. The acinar pattern is replaced by a bizarre puddling and pooling of the contrast material (fig. 9, A). The secretory phase shows virtually complete retention of the contrast material. Comparison with the histologic changes indicates that retention results because the normal acinar tissue has been destroyed or replaced by invasive neoplasm and the secretory function is lost. It should be reiterated that these bizarre puddling and pooling patterns are indistinguishable from the radiographic picture of destructive sialectasis. The differential point lies in the fact that the other major salivary glands, exclusive of the one involved by a tumor, show the normal sialographic pattern (fig. 9, B). Certainly, no attempt should be made to diagnose the histologic type of salivary gland neoplasm by sialography.

SUMMARY

This report, based on the analysis of 170 cases, including more than 250 sialograms, correlates the clinical and sialographic observations made with the modified technique, secretory sialography.

No preconceived or precalculated amount of contrast material should be injected into the salivary gland. The amount should be limited by the production of pain.

Physiologic emptying of the salivary glands should be accomplished by reflex chemical stimulation. This has proved to

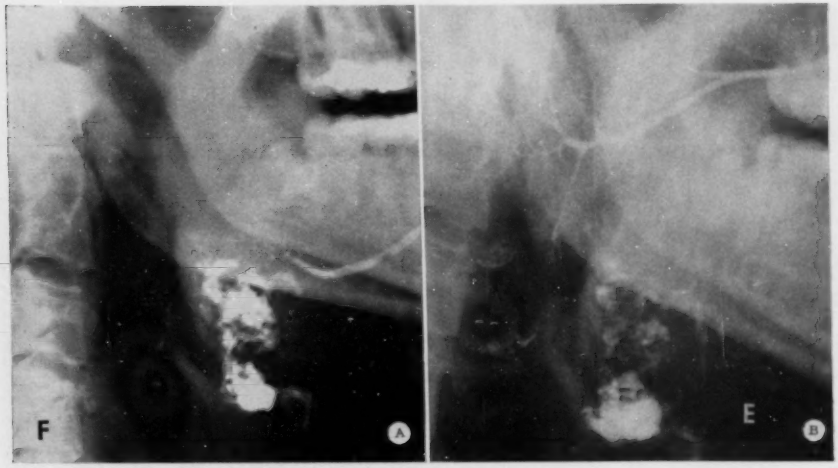

FIG. 9—Infiltrative salivary gland neoplasm. (A) The filling phase demonstrates disruption of the glandular architecture and destruction of the duct system. (B) The emptying phase shows virtually complete retention of of the contrast material. Comparison with the histologic changes indicates that retention results because the normal acinar tissue has been destroyed or replaced by invasive neoplasm and the secretory function lost. The parotid duct system on the same side is normal.

be of diagnostic significance in inflammatory and neoplastic disease in and about the salivary glands.

REFERENCES

1. Blatt, Irving M., et al.: Secretory sialography in diseases of the major salivary glands, Ann. Otol., Rhin. & Laryng., 65: 295-317 (June) 1956.
2. Feuz, J.: La sialographie; sa technique; ses indications, son utilite, Rev. de laryng., 56:1037-1116 (Nov.) 1935; 57:66-89 (Jan.) 1936.
3. Rubin, Philip; Blatt, Irving M.; Holt, John F., and Maxwell, James H.: Physiological or secretory sialography, Ann. Otol., Rhin. & Laryng., 64:667-688 (Sept.) 1955.

DISCUSSION

DR. MAXWELL: I wish to compliment Dr. Blatt on his presentation. His contribution on this subject has been helpful in the differential diagnosis of parotid lesions—particularly in the diagnosis of cysts and tumors outside the fascial investment of the gland. In his continuing research he is assisting in the attempt to ascertain some fundamental truths relating to Mikulicz's disease and Sjögren's syndrome.

It is gratifying to see a young man engaged in research projects and showing evidence of scientific productivity during the period of his residency.

Symposium: Disorders of the Salivary Glands

SURGICAL MANAGEMENT OF TUMORS OF THE PAROTID GLAND

JOHN J. CONLEY, M.D.
NEW YORK, NEW YORK

MY discussion will be limited to a brief academic résumé of benign and malignant tumors in the parotid gland and their surgical management, followed by a motion picture demonstrating the technique.

For over a hundred years, clinicians, surgeons and pathologists have been interested in tumors of the parotid gland. During this interval, however, there has been a great argument and, as a matter of fact, a considerable amount of confusion about the management of these lesions. This has come about primarily because of the lack of correlation between an accurate and scientific microscopic classification of the various types of tumors occurring in the parotid gland with the treatment and the prognosis.

During the past ten years great progress has been made in microscopic classification. I think that Dr. Maxwell's work on the classification of parotid tumors has been very helpful, as well as the excellent review by Foote and Frazell.

Perhaps the great deterrent to the management of these problems has been the fear of damaging the facial nerve. It is almost instinctive on the part of the surgeon to approach this nerve with trepidation. No one is anxious to create a facial paralysis in a patient, and certainly the patient is rarely grateful for this handicap. A great deal of the sting has been taken out of the tragedy by nerve grafting, and I should like again to pay homage to Dr. Lathrop, who did a magnificent piece of work in grafting during World War II and whose results along this line speak for themselves; also to Dr. Maxwell, who has pioneered this work at Ann Arbor and who has shown us, previously, splendid results with nerve grafting.

I would only like to re-emphasize the value of the work that they have started. In addition, other techniques, such as muscle transplantation, rotation, fascial supports, muscle shortening, and tranquilization of the contralateral side of the face, have added a great deal to the rehabilitation of the paralyzed face.

As far as types of tumors are concerned, the vast majority of tumors of the parotid gland—I would say approximately 60 per cent—are mixed tumors. The important thing about the mixed tumors is that approximately 10 per cent in the large tumor centers and perhaps 5 per cent in general hospitals are malignant, and a malignant mixed tumor is considered a high-grade tumor. It carries approximately 50 per cent mortality. It has a great tendency to recur locally, to metastasize to the regional bed in about 30 per cent of the cases, and to manifest systemic metastasis in about 30 per cent of the cases.

Benign tumors, such as fibroma, lipoma, cysts, and adenoma comprise about 20 per cent of tumors found in the parotid gland.

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The rest of the tumors are malignant growths. It is important to separate these malignant tumors, also into two classes: the high-grade malignant tumors and the low-grade malignant tumors. In this relation, there is a significant and profound need for an accurate microscopic diagnosis in relation to management and prognosis, because the low-grade malignant tumors, which, in turn, consist essentially of two types, namely, the low-grade mucoepidermoid cancer and the low-grade acinous-cell adenocarcinoma, have excellent prognoses. Approximately 80 per cent of the cases are salvageable. The tumors rarely metastasize to the neck, and systemic metastasis is seldom manifest.

The 80 per cent salvage rate is in severe contrast to the salvage rate in the cases of high-grade malignant tumor, namely, the high-grade mucoepidermoid carcinomas, the squamous-cell carcinomas, and the high-grade adenocarcinomas. These tumors carry mortalities in the neighborhood of 60, 70 and 80 per cent, the 80 per cent being reserved chiefly for the squamous-cell type. These tumors readily metastasize to the regional bed and throughout the body. All parotid tumors—particularly those which are malignant—have a great tendency to recur locally, and in many cases this is the cause of death.

In discussing the controllability of local recurrence of tumors in the adenocarcinoma group, I should like to single out a type of microscopic picture. It is that of the cylindroma, called in some areas the adenocystic basal type of adenocarcinoma; it again has a great tendency to recur locally. It evidences systemic metastasis, and it has a tendency to spread along the perineural sheath locally.

As far as the treatment of the benign mixed tumors is concerned, I think the most adequate and inclusive treatment is a lateral lobectomy for all tumors located in the lateral lobe. If they are in the isthmus or in the medial, pterygoid, or inner lobe, then a total parotidectomy has to be done for a benign tumor. However, 90 per cent of the problems can be handled successfully by a lateral lobectomy. This includes exposure of the facial nerve, identification of the nerve throughout its course through the isthmus of the parotid, and of course, preservation of the nerve intact. The identification of the nerve is handled differently by different operators.

It is our custom when the tumor is benign, to make a characteristic Y incision about the ear down into the neck and to identify the sternocleidomastoid muscle, the posterior belly of the digastric muscle, the styloid process and its fat pad, and then the main trunk of the facial nerve. The anterior lobe is retracted forward.

I think it is convenient and helpful to have the faradic stimulator on hand to assist in the identification of the main trunk. Then the lateral lobe is retracted anteriorly and laterally, and the nerve is freed. Under ordinary circumstances the entire lateral lobe can be removed without creating a facial weakness or paralysis. If the tumor is large, or if it has encompassed the nerve, it is almost impossible to remove the entire gland without some temporary trauma to the nerve. This results in a temporary and transient weakness which may last several weeks or several months.

Under certain circumstances it may be admissible to resect the nerve, even when the tumor is benign. Such circumstances are very rare.

The clinical course and picture is the clue to the diagnosis and treatment of parotid tumors. Tumors which have been present for years—five, ten, fifteen, or twenty years, have grown very slowly, are not painful, have not ulcerated, have not become fixed, and evidence no facial

nerve paralysis, are assumed to be clinically benign tumors. The two types of low-grade malignant tumors can fit into this clinical classification in the early course of their development and, as a matter of fact, mimic benign mixed tumors.

The highly malignant tumor, on the other hand, grows rapidly, becomes fixed to the surrounding tissue, is invasive, ulcerates, causes pain, and in a fair percentage of instances invades the facial nerve and causes paralysis. It must be handled in an entirely different manner than the previous type. The treatment of all high-grade tumors is radical excision of the entire parotid gland and the lateral neck contents.

It is strange that squamous-cell cancer, which has almost an 80 per cent mortality, does not metastasize to the regional bed frequently. However, it is impossible to tell preoperatively whether one is dealing with such a tumor unless there is an ulcerative lesion; so such cases are handled in a composite manner along with the other high-grade tumors.

If the high-grade tumor is small and is limited to the lateral portion of the lateral lobe, I think it is permissible to do a total parotidectomy and neck dissection and to keep the nerve intact. If it is large, however, the nerve should be sacrificed without any hesitation.

I should like to reiterate that, naturally, in only a small percentage of the cases must the nerve be sacrificed, but when this is necessary I feel that one is not justified in putting an attempt to avoid a facial paralysis ahead of the welfare of the patient in these days in which so many methods of rehabilitation are available.

[The motion picture was then shown.]

DISCUSSION

DR. MAXWELL: Thank you, Dr. Conley, for a beautiful presentation. In the procedure shown, Dr. Conley certainly made every possible effort to eradicate the lesion completely and to minimize the resultant deformity. Certainly, a complete cure should reward these extended efforts.

Dr. Conley's method of approximating the nerve ends is intriguing and undoubtedly possesses merit. I have only one question; that is "Since a free nerve graft needs nutrition which it must derive from the surrounding medium, might there be some disadvantage in isolating it in a plastic tube?"

Also, I would like to ask Dr. Conley if it has been his experience that neoplasms of different cell types seem to have a propensity to metastasize by different routes? In my experience, the serous-cell adenocarcinoma and the pseudo adenomatous basal-cell carcinomas (malignant cylindromas or adenocystic carcinomas) usually metastasize by way of the blood stream. In my own series of cases, I have been inclined to doubt that routine radical neck-node dissection would alter the pronosis in this latter group of neoplasms.

It is my feeling that the best prognosis in the case of a truly malignant metastasizing neoplasm of the parotid gland can be offered in a squamous-cell tumor in the superficial portion of the gland. Malignant tumors of any cell type arising in the deep portion of the gland and infiltrating the styloid group of muscles carry an exceedingly poor prognosis.

In conclusion, I recall a paragraph from Mikulicz's original paper in which he commented on the nature of the small cell infiltration in his case, which corresponded to the properties of a tumor of lymphoid tissue. He stated that one could "think histologically of a lymphoma or lymphosarcoma." His next statement is indeed significant: "Herewith we resign ourselves to an unsafe ground; to a field in which clinical observation and histologic investigation are not yet brought fully into accord, and in which the nomenclature is still inexact and ambiguous." How well this statement applies to tumors of the salivary glands today!

DR. CONLEY: I will answer these two questions.

The first one with respect to the nourishment of the nerve encased in this plastic cylinder. The little cylinder is about a centimeter long. It should be at least twice the diameter of the nerve filament contained inside of it. In addition to that there is a fenestrum in it. I don't think you could see it too well in the motion picture, but the top part of the tube

is scooped out and there is a window there. The purpose of the window is to let serum and blood move in a capillary fashion into the nerve, and also so that the two little filaments of the nerve can be teased together, under magnification, with a fine pick.

As stated before, I feel that if the nerve is given half a chance it will grow back to some degree in most instances whether the plastic tube is used or not, and there are many cases on record, particularly in children, where regeneration of the nerve has occurred to a certain degree even without the assistance of any type of grafting or anastomotic procedure.

The insertion of the nerve directly into certain muscle bundles—nerve filaments into muscle bundles—has been claimed by certain workers to have some success.

I have had no experience with these other types of techniques, but it is my impression—and I think it is the impression of Dr. Lathrop and Dr. Maxwell—that if the nerve is given an opportunity, if an effort is made to help it, it will regenerate to a certain degree in most instances.

As far as the biology of some of these tumors is concerned in relation to their types of metastasis, I think the cylindroma, the one he mentioned, does behave in a rather characteristic method. Its local recurrence rate is high. Its local biological activity is to extend along the perineural sheath. Its systemic metastasis is usually hematogenous.

As far as the squamous cell tumor is concerned, its local recurrence rate is very high. It is very aggressive locally. Strangely it does not have a high incidence of regional metastasis in the neck, but it does have approximately a 30 per cent systemic metastasis.

The other tumors, the high-grade malignant tumors, have a little more classical type of metastatic picture in the regional lymphatic bed and systemically.

STUDIES CONCERNING VESTIBULAR FACTORS IN THE BALLET DANCER, THE PIGEON, AND THE BLIND PERSON

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CINCINNATI, OHIO

THE present discussion is not entirely concerned with academic matters. Some of the findings resulting from these studies may be directly applied to clinical practice.

When we carefully watch a ballet dancer performing her turns, the so-called "pirouettes," we will notice jerking movements of the head occurring rhythmically in short intervals during her spinning. These head jerks are not a kind of head nystagmus such as was shown by Ewald[5] to occur reflexly in pigeons and some other animals when rotated. In the dancer these head movements are intentionally produced and represent an integral part of her professional training. The ballerina is well aware of the importance of these head jerks in maintaining balance during, and particularly when stopping, the pirouette. The dancers call this technique "spotting." The questions regarding why and how these head movements prevent postrotatory reactions already puzzled Bárány,[2] who considered a possible analogy with conditions in the pigeon as observed by Ewald.

We approached the problem by decomposing the pirouette into its constituent parts. We appreciate in this matter the assistance and, as will be seen, the cooperation of Miss Geraldine Roberts, a member of the Department of Dance of the Cincinnati Conservatory of Music. Consultation of some monographs on ballet dancing[6,1] provided additional information.

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ANALYSIS OF THE PIROUETTE

As we learned from the ballerina, the dancer chooses an immobile object in front of her as a reference point before starting her turns; this she keeps in focus during the entire act.

The pirouette consists of two phases. In the first, only the body rotates. The head is fixed as though it were connected with the immobile reference point by an imaginary rigid link. While the body keeps on rotating as far as permitted by vertebral joints and ligaments, the reference point appears to move in the opposite direction until the extreme limit of possible excursion is reached. At this moment the second phase appears as an additional rapid turn of the head, in the direction of the preceding rotation of the body, covering an arc of about 180 degrees. Thus, the reference point is focused again in front of the dancer. The cycle is now completed and may be repeated as before.

The questions which confront us are, Is it possible that during these two phases, semicircular canal stimulation takes place? If not, why not? As you know, the canals are stimulated by cupula displacement, which in the case of rotation depends on inertia due to acceleration or retardation of rotation of the head; of course, of the head but not of the body. Since there does not exist any head rotation during the first phase, any possible

cupula displacements can be ruled out. In the second phase, a brief and rapid head rotation occurs. Dohlman,[4] in his beautiful experiments, has shown the absence of cupula displacement upon brief rotation of the head.

As he explained it, acceleration when rotation starts and retardation when it stops are forces opposing and neutralizing each other when appearing within a brief interval. It is logical to assume that identical factors are operating during the second phase of the pirouette. Therefore, whenever the pirouette is stopped the cupula remains in its resting position and hence stimulation of the semicircular canals is absent.

The importance of "spotting" for maintenance of balance is shown by comparing the appearance of the dancer when spinning, alternately with and without "spotting." In the first case, when she stops her turns there is no imbalance or past pointing, but she is evidently imbalanced when she stops spinning without "spotting." Another simple proof, to the same effect, is derived by rotating the dancer in the revolving chair alternately without and with "spotting." The reference point is placed in front of her. When she is rotated in the usual way without "spotting," postrotatory responses appear. These include past pointing and nystagmus. The latter is small and of short duration, probably because of some professional adaptation. Contrariwise, when rotation with perrotatory "spotting" is stopped, no past pointing or nystagmus appears. A similar experiment was anticipated by Bárány[2] and is mentioned by Mowrer[8] with reference to Griffith.

NYSTAGMUS IN THE PIGEON

Ewald, as mentioned, has shown in the pigeon the presence of head nystagmus during rotation with absence of postrotatory nystagmus. However, when he blinded the pigeon, head nystagmus during rotation was absent but a distinct postrotatory head nystagmus appeared. We duplicated Ewald's experiment with a minor modification. Instead of blinding the pigeon, we only blindfolded it with a piece of adhesive tape. The results were the same.

Evidently there exists a striking analogy between conditions in the dancer when "spotting" while spinning and the pigeon's head nystagmus when it is being rotated.

1. In both, postrotatory responses do not occur subsequent to rotation with simultaneous head movements, such as those intentionally produced by the dancer when "spotting" and those occurring reflexly in the pigeon.
2. In both, postrotatory responses do occur subsequent to rotation without perrotatory head movements.
3. In both, perrotatory head movements are under visual control.

Moreover, it was shown that in the pigeon, elimination of vision abolishes the perrotatory head nystagmus. Therefore, it appears that perrotatory nystagmus in the pigeon depends predominantly, or even exclusively, on vision, and that labyrinthine stimuli per se in the absence of vision do not produce perrotatory nystagmus of an appreciable degree.

NYSTAGMUS IN THE BLIND PERSON

It was a challenging problem to determine the part contributed by the labyrinth to perrotatory nystagmus in the human.

It is well known from studies of Bárány,[2] Brunner[3] and others, and particularly from the work of Cemach and Kestenbaum,[7] that in man the visual factor in perrotatory nystagmus dominates the vestibular factor. The latter authors have shown normal perrotatory nystagmus regularly present in cases of complete bilateral vestibular paralysis. We have observed its presence in patients subsequent to meningitis and to streptomycin intoxication, in the absence of any vestibular function.

In man, perrotatory nystagmus is known to be the result of combined optokinetic and labyrinthine stimuli. To determine the labyrinthine component, vision had to be eliminated. Application of Ewald's modified experiment to man was a severe technical problem. Of course, vision as a factor could be eliminated during rotation by performing the test in a dark room, by blindfolding the patient, or by testing him with his eyes closed. But these procedures prevented observation of eye movements. Nystagmographic devices were not available to us. For these reasons we studied conditions in patients with complete binocular blindness. We noticed perrotatory nystagmus regularly present when rotation was started. The intensity was less than in the sighted person, gradually decreasing until nystagmus completely disappeared. This took an average of about ten rotations.

We succeeded in establishing a close analogy between conditions in man and Ewald's experiment with the blinded pigeon by experimenting with persons with monocular blindness. In these cases, vision of the patient can be completely eliminated by blindfolding only the sighted eye, while nystagmus can be observed by watching the uncovered blind eye. One of these patients, subsequent to a basal skull fracture, became blind in the right eye and had a temporal defect in the left. Normal nystagmus could be noted during rotation with both eyes open. It disappeared when the sighted eye was covered and reappeared when it was again uncovered. Of course, postrotatory responses are present even with the sighted eye covered. When rotation is started with the sighted eye covered, nystagmus with gradually decreasing intensity appears; it disappears after several rotations but reappears when the sighted eye is again uncovered. From these studies it has become evident that in man, nystagmus during rotation depends predominantly, but not exclusively, on optokinetic factors. Its unrestricted persistence during rotation proves presence of vision, its gradual decrease and final disappearance proves blindness.

Ter Braak[9,11] differentiated two types of optokinetic nystagmus: one cortical, or active; the other subcortical, or passive. In the former, only a part of the visual field rotates. The occurrence of cortical nystagmus depends on attention directed to the moving object. It can easily be prevented by shifting attention to resting objects. In the subcortical type, the entire panorama is moving. This nystagmus is independent of cortical influences. Scala and Spiegel[10] have shown presence of subcortical nystagmus after removal of both hemispheres, when only the superior colliculi were kept intact.

Optokinetic drum nystagmus is an example of the cortical type. Its use as a test for differentiating between organic and psychic blindness, as repeatedly mentioned in the literature, is unreliable and condemned by Walsh,[12] since it depends on the cooperation of the subject. Contrariwise, the optokinetic nystagmus induced by rotating the subject on the Bárány chair, as shown in our studies, represents the subcortical type which cannot be suppressed by any cortical impulses. Complete organic blindness is proved by gradual disappearance of *such* nystagmus—binocular if it ceases without, and monocular if it ceases with, covering of one eye. This procedure may be called "the perrotatory nystagmus test for blindness." We have used this test in a few cases to the satisfaction of the attending ophthalmologists and neurologists. The development of this test represents, to some extent, an unforeseen practical application arising as a side effect from a primarily academic study. The present occasion appeared to be an appropriate one for presenting this procedure to the profession as a reliable clinical test.

REFERENCES

1. Ambrose, Kay: The Ballet Students Primer, New York, Alfred A. Knopf, 1954.
2. Bárány, Robert: Untersuchungen über den vom Vestibularapparat des Ohres reflektorisch ausgelösten rythmischen Nystagmus und seine Begleiterscheinungen, Monatschr. f. Ohrenh., 40:193-297, 1906.
3. Brunner, Hans: Zur klinischen Bedeutung des optischen Drehnystagmus, Klin. Monatsbl. f. Augenh, 68:783-785 (June) 1922.
4. Dohlman, Gösta: Some practical and theoretical points in labyrinthology, Proc. Roy. Soc. Med., 28:1371-1380 (Aug.) 1935.
5. Ewald, Jack Richard: Physiologische Untersuchungen über das Endorgan des Nervus octavus, Wiesbaden, J. F. Bergmann, 1892.
6. Franks, A. H.: Approach to the Ballet, New York, Pitman Publishing Company, 1948.
7. Kestenbaum, Alfred: Clinical Methods of Neuro-Ophthalmologic Examination, New York, Grune and Stratton, 1946.
8. Mowrer, O. H.: Some neglected factors which influence the duration of post-rotational nystagmus, Acta oto-laryng., 22:1-23, 1935.
9. Rademaker, G. G. J., and Ter Braak, J. W. G.: On the central mechanism of some optic reactions, Brain, 71:48-76 (March) 1948.
10. Scala, Norman P., and Spiegel, Ernest A.: Subcortical (passive) optokinetic nystagmus in lesions of the midbrain and of the vestibular nuclei, Confinia neurol., 3:53-73, 1940.
11. Spiegel, E. A., and Sommer, I.: Neurology of the Eye, Ear, Nose, and Throat, New York, Grune and Stratton, 1944.
12. Walsh, Frank Burton: Clinical Neuro-Ophthalmology, Baltimore, Williams & Wilkins, 1947, p. 319.

A METHOD FOR CALCULATING THE AVERAGE DECIBEL LOSS OF HEARING IN WORKMAN'S COMPENSATION

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THERE is emerging a formula for the evaluation of hearing loss in Workman's Compensation cases which is based on the average decibel loss in each ear at several fixed frequencies. In New York and Missouri, the average of the decibel loss in five frequencies between 250 and 400 cycles per second is the basis for converting to a percentage loss of hearing for compensation purposes. In Wisconsin, the average decibel loss in only three frequencies (512, 1024, and 2048) is used to determine compensable loss of hearing. This communication is an attempt to clarify the concept of the *average decibel loss*. The States that recognize occupational hearing loss as a compensable disease use the arithmetic mean as the average value of the decibel loss. It is my belief that the average value can be determined more accurately by another method.

In Missouri, the hearing losses in decibels, as disclosed by audiometric test for the five frequencies of 256, 512, 1024, 2048, and 4096 cycles per second, are added together and the total is divided by five.

$$\text{The average (arithmetic mean)} = \frac{\Sigma\,(x)}{n}$$

Σ = sum
x = decibel loss at each frequency
n = the number of frequency bands used

We have set up a hypothetical case with the decibel losses determined audiometrically (table I).

TABLE I
HEARING LOSSES IN HYPOTHETICAL CASE

FREQUENCY (CPS)	LOSS IN DECIBELS	
	RIGHT EAR	LEFT EAR
256	25	20
512	25	20
1024	15	20
2048	15	15
4096*	60	80

*It is not an unusual situation in occupational deafness to find a marked loss in 4096 frequency.

By the usual calculation, this would be an average loss of 28 decibels, for the right ear:

$$\frac{25+25+15+15+60}{5} = 28$$

For the left ear the average loss would be 31 decibels:

$$\frac{20+20+20+15+80}{5} = 31$$

An arithmetic average means something if the units of the group we are averaging are standardized; that is, if there is a standard with which we can compare our unit—miles, pounds, acres, hours, or any measurable unit that has a fixed measurement for that unit. When the unit has no fixed measurement, as in "miles per hour," or decibels, we must arrive at a unit that can be averaged. The unit in "20 miles per hour" is not the same unit as in "60 miles per hour." At 20 miles per hour, the *mile per hour* in one twentieth of the speed; while at 60 miles per hour, the *mile per hour* is one sixtieth of the speed.

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In a similar way, if the threshold level at 256 cycles per second (cps) is 20 decibels, then the unit decibel to threshold is one twentieth of the threshold decibel reading, while at 4096 cps, if the threshold level is 80 decibels, the unit decibel is one eightieth of the decibel reading at threshold. (With the same addition of physical energy, the increase in subjective loudness is about twenty times greater at 50 cps than at 1000 cps.) To achieve an average speed or an average decibel reading at threshold, it is necessary to average the values of the unit measurements and then convert to average speed or average threshold of hearing. There is a formula for doing this, it is called the *harmonic mean*. It is defined mathematically as the reciprocal of the arithmetic mean of the reciprocals of the values we wish to average.

Let me illustrate:

Here is a square track, each side of which is 20 miles long.

An automobile travels around this track in this fashion: from A to B at 20 miles per hour (mph); from B to C at 20 mph; from C to D at 20 mph; from D to A at 60 mph. What is its average speed?

If calculated in the usual way, it is easy to see that the average speed should be 30 mph:

$$\frac{20 + 20 + 20 + 60}{4} = 30 \text{ mph}$$

Obviously this is not the right answer if we take account of the time involved: The distances AB, BC, and CD each took one hour; DA took one third of an hour.

$$\text{Average speed} = \frac{\text{Distance}}{\text{Time}} = \frac{80}{3\frac{1}{3}} = 24 \text{ mph}$$

At 30 mph it would take only two and two-thirds hours to cover the 80 miles, and this is less than the time it actually takes. Obviously then, 30 mph is not the right answer. Let us apply what is known about averaging speeds, frequencies, etc.

$$\text{The average (harmonic mean)} = \frac{n}{\Sigma\left(\frac{1}{x}\right)}$$

$$\text{Average speed} = \frac{4}{\frac{1}{20}+\frac{1}{20}+\frac{1}{20}+\frac{1}{60}} = \frac{4}{\frac{3+3+3+1}{60}} = \frac{240}{10} = 24 \text{ mph}$$

To show how this reasoning applies to determining the average hearing loss, let us go back to our hypothetical case (table I).

For the right ear, this would be 21.7 decibels:

$$\text{Average} = \frac{5}{\frac{1}{25}+\frac{1}{25}+\frac{1}{15}+\frac{1}{15}+\frac{1}{60}} = \frac{5}{\frac{12+12+20+20+5}{300}} = \frac{1500}{69} = 21.7 \text{ decibels}$$

For the left ear, this would be 21.8 decibels:

$$\text{Average} = \frac{5}{\frac{1}{20}+\frac{1}{20}+\frac{1}{20}+\frac{1}{15}+\frac{1}{80}} = \frac{5}{\frac{12+12+12+16+3}{240}} = \frac{1200}{55} = 21.8 \text{ decibels}$$

The use of the harmonic mean as the average makes figuring more complicated. It gives a meaningful average that is accurate. It also weights the correction

of the marked drop at 4096 cps, so it is more in line with the compensable hearing loss.

In the hypothetical case:

	HEARING LOSS BY ARITHMETIC MEAN	HEARING LOSS BY HARMONIC MEAN
Right ear	28	21.7
Left ear	31	21.8

CONCLUSION

I believe that hearing loss for Workman's Compensation cases can be more accurately calculated if the average hearing loss is determined as a harmonic mean rather than as an arithmetic mean. The average decibel loss calculated as a harmonic mean should be used in the formula for determining compensation for occupational loss of hearing.

A CORNEOSCLERAL "TRACT" FORCEPS

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and
WILLIAM C. HUBBARD, M.D.
BY INVITATION
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FIG. 1—A corneoscleral "tract" forceps.

RELATIVELY too much time is taken in placing appositional sutures. Perhaps one of us may some day perfect a combination forceps and suture, such that a suture may be placed at the limbus, a spring pressed, and the suture passed through in a moment's time. As a step in this direction, a forceps* may be used to prepare a "tract" for the later passage of the suture (fig. 1). The tips of the forceps, as obtained from the manufacturer, are 4 mm. long. They can be shortened by an instrument technician or by an optician, if the operator desires, to 3.5 mm. or even 3 mm. The tips are made of malleable metal so that their curve can be adjusted in a moment's time with optical pliers. The tips are almost perpendicular to the shanks of the forceps so that when closed, they bite approximately 0.5 mm. into the convex eyeball, one tip into the sclera and one tip into the cornea. The tips can be adjusted so that they barely approximate or so that they overlap somewhat, according to the preference of the surgeon, and this can be controlled by direct vision or by a guard. The needle and thread are easily passed through the prepared tract, which is somewhat larger than the needle. By applying a dye to the forceps tips or to the area with a tiny cotton applicator, the tract may be marked.

Presented as a *New Instrument* at the Sixty-First Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1956, Chicago.

*Manufactured by V. Mueller and Company, Chicago.

AN IMPROVED MAGNIFIER

WILLIAM B. HUBBARD, M.D.
and
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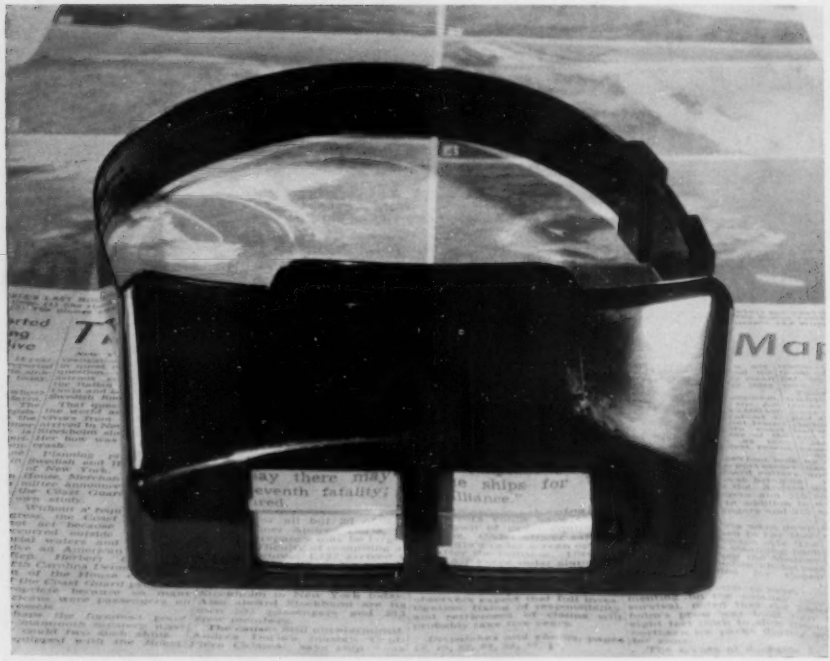

FIG. 1—An improved magnifier.

AN ORDINARY magnifier, the Magnifocuser*, which comes in various degrees of magnification, was modified to our specifications by our local optician† (fig. 1). From one magnifier, the one and three-fourths magnification lenses and supporting plastic flaps were removed, and the frame was discarded. The flaps were put in acetone to soften and become "sticky." The lenses were reduced longitudinally to half their size. On another magnifier of the same strength, the upper half of each plastic flap holding the lenses in place was removed. The prepared lenses were placed upon the other

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*Manufactured by Edroy Products Co., New York.

†Flint Optical Service, 511 National Bldg., Flint, Michigan.

lenses above, and were fixed in place by the softened, adherent, plastic flaps. This gave, with the lenses used, approximately one and three-fourths magnification below for ordinary use, and three and one-half magnification above when stronger magnification was desired. The area of visibility was perfectly adequate, and there was no discomfort when changing from one segment to the other. After about six months of use, a few dust particles were seen between the lenses and were easily blown out with compressed air.

AN ARM-SUPPORT TABLE

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and
WILLIAM C. HUBBARD, M.D.
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FLINT, MICHIGAN

THE arm-support table which we have devised eliminates enough stress and strain to justify its use in office and operating room. The base of the table is that of an ordinary gooseneck lamp or Mayo table. The male section is from an ordinary Coakley light. This section was threaded by a plumber, and a common plumbing attachment for attaching the top was screwed on. The top of the table was fastened on with wood screws. The two screws shown for adjusting the height of the table are desirable, although one screw would do. The top of the table is not rigid and allows some flexibility for arm movement. It is made of three-fourths inch soft pine and is covered with a layer of common white plastic material. The top is roughly the shape of a T. More specifically it is the shape of one half of an hourglass with a long neck. It is twenty inches long and twelve inches wide. The bars of the T are four and one-half inches wide.

The shape described was found to be the most versatile, although it can easily be modified for individual preference. One side can be raised by placing a flat object under one arm. The table may be used with the operator standing or sitting (figs. 1-3). It can be used for

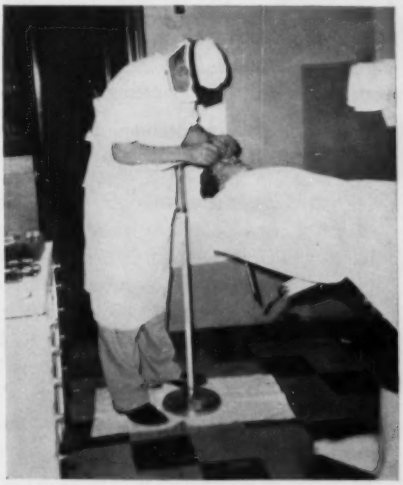

FIG. 1—An arm-support table, showing use of the table while surgeon stands.

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FIG. 2—An arm-support table, showing use of the table while surgeon sits.

FIG. 3—An arm-support table, showing use of the table with one arm. (This picture shows original shape before modification described was adopted.)

"elbow" or "wrist" support, depending on how close the table is placed to the patient. The surgeon should become familiar with the table by using it for office procedures, including removal of sutures, for which it is very useful, before using it in the operating room.

The table is not intended to support a great deal of weight, which would interfere with free movements, but should be used merely to steady one or both of the surgeon's forearms.

The table can be used in conjunction with Dr. Noel T. Simmond's surgical pillow,[1] and it is much less complicated than his surgical chair.[2]

REFERENCES

1. Simmonds, Noel T.: Surgical pillow, Tr. Am. Acad. Ophth., 60:494 (May-June) 1956.
2. ———: Surgical chair, Tr. Am. Acad. Ophth., 60:494-496 (May-June) 1956.

NEW OPERATIVE CARD FORM

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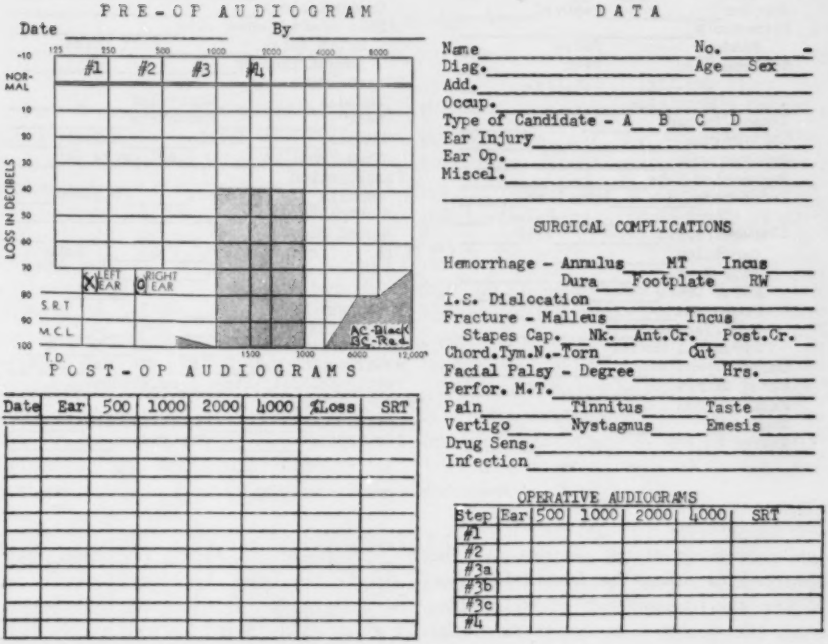

FIG. 1 — Front of operative card form.

A SIMPLE card form is suggested for use in the operating room to tabulate anatomical findings during surgical procedures on the ear, operative technique, complications, and tests of mobility of cochlear fluid (figs. 1 and 2).

"Otometric" operation is a term proposed to include various procedures performed in order to mobilize the cochlear fluid. Such procedures include arthrolysis, stapedolysis, ossiculectomy, and fenestration. Tests to determine degree of mobility during operation may be (1) audiometric, to prepare a *Normogram;* (2) subjective, such as the *tunnel test* whereby the patient attempts to detect any change in his voice with or without pressure on the membrana tympanum or stapes before and after mobilization; and (3) visual or objective, in which ac-

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OTOMETRIC OPERATION

EAR____ Type Anesthetic_____ DATE_____

Preop. B.P.____ Sensitiv. _____
Hb.____ COAG.____ El.T.____
AURICLE_____ CANAL_____
M.T._____ PERFOR._____
TYMPANUM
Exposure-ICT__ SCT__Good__Poor__
Annulus_____ Removed_____
Promontory_____
Bands_____ Spurs_____
Malleus-Head_____ Neck_____
Sup.Lig.___Lat.Lig._____
Manubrium_____
Tensor Tympani_____ Tendon_____
Epitympanum_____
Hypotympanum_____
Eustachian Tube_____
Incus-Body_____ Long Limb_____
Short Limb_____ M.I.Jt.__
Stapes-I.S.Jt._____ Tilt_____
Capitulum_____
Ant. Crura_____
Post. Crura_____
Footplate_____
Stap.Tendon_____
Pyramidal Emmin._____
Chorda Tymp. N._____
Round Window_____ Spurs_____
Facial Canal_____
Ampulla_____ Tegmen _____
Antrum_____ Cells_____

TECHNIC OF MOBILIZATION(of cochlear fluids)
Tympanoplasty - 1__2__3__4__5__
Fibrous Bands Cut_____
Spurs removed_____
Arthrolysis_____
Artgrodesus_____
Ossiculectomy_____
Skin Graft--Donor site_____
Split Thick._____ Full Thick.____
Immobilized by_____
Stapedolysis
Incudal_____ Capitulum_____
Neck_____ Footplate_____
Hammer_____ Drill_____ Chisel_____
Stap.Tend.Cut_____ Ant.Crura Cut____
Fenestration
Ampulla_____ Cupola_____ Pb lined____
Footplate_____
Round Window_____
TESTS Preop AMA % R____ L____ Date
SRT R____ L____
Fixed Mobile
Normogram SRT 1____2____ 3____4____
Tunnel Test MT____S____ MT____S____
Rd.W.Reflex MT____S____ MT____S____A____
Mobility MT_Mal_I__S__ MT_Mal_I_S__
Perilymph-Footplate____Rd.Window_____
POSTOP. ORDERS
Antibiotic_____ Antihistamine_____
For Vertigo_____ For Nausea_____

FIG. 2 — Reverse side of operative card form.

tual movement of the ossicles may be observed, or, using the *Round Window Reflex*, the transmission of an impulse from the fenestra ovalis or novovalis through a droplet of fluid placed in the round window niche may be watched before and after mobilization.

Complications during operation may also be tabulated. Anatomical details as seen through the dissecting microscope may be easily noted, as well as whether exposure is below (infra) or above (supra) the chorda tympani (ICT or SCT).

The Future Status of Ophthalmologists and Otolaryngologists in Medical Schools and Hospitals

* * *

THE VIEWPOINT OF A DEAN

A. C. FURSTENBERG, M.D.

ANN ARBOR, MICHIGAN

THE demanding disciplines of medical practice today call for a broad, general, well integrated knowledge of ophthalmology and otolaryngology. I should like to state that no general practitioner today is able to practice with credit to himself and with safety to his patients without a knowledge of these two disciplines. My experience of the past several years in visiting general practitioners and working in their offices in some of the rural areas of the state of Michigan convinces me that it is very important to have a working knowledge of ophthalmology and otolaryngology if you are going to practice general medicine. The generalist today sees a great many patients with ophthalmological and otolaryngological disease. I believe we can say without equivocation that ophthalmology and otolaryngology are two of the fundamental disciplines in the general practice of medicine.

We need to recruit new leadership in academic ophthalmology and otolaryngology. We must have teachers who inspire the student, who emphasize to him the opportunities for his own development and for service in these two fields. The proper time to inspire and to interest the student is during his early formative years in the undergraduate medical curriculum. I make an appeal, therefore, that you approach the student at this time and acquaint him with the importance of these two subjects in the curriculum. Try also to gain his interest and enthusiasm in these subjects so that he will carry on in the fields of otolaryngology and ophthalmology.

I don't need to take your time to describe in detail minimum undergraduate curriculums in ophthalmology and otolaryngology. What is good for one medical school may not be good for another. A curriculum that will function well in one medical school may not be properly integrated to serve well in another institution.

As you well know, survey teams are the order of the day. I have been on some of these teams composed of deans and professors and miscellaneous educators. "To be a good educational surveyor, or any kind of a social analyst for that matter," says Dean Martin tenHoor, "you must have a sharp eye for foreign mistakes but a dull one for domestic errors. You must be a contented extrovert, so that after you have diagnosed the faults of others you are willing to live in perfect comfort with your own." I shall not attempt, therefore, to prescribe minimum undergraduate requirements in ophthalmology and otolaryngology. I should like to point out, however, one pedagogic problem which I believe is often neglected or at least overlooked; namely, failure to bring about a proper correlation of the basic sciences and clinical medicine.

Presented at the *Special Session of the Teachers' Sections* at the Sixty-First Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 14-19, 1956, Chicago.

Consider for the moment undergraduate medical education: We thrust the medical student into two years of arduous studies in the basic sciences and then transfer him abruptly to the clinical years in the hospital. In this program there is little opportunity for him to obtain good correlation of the basic sciences and clinical medicine. We believe today that this is a mistake. Many of the medical schools are trying now to integrate the basic sciences with clinical medicine, to introduce some genuine practical clinical problems into the freshman year, so that the student will become acquainted with the patient early in his career. This trend is in vogue at the present time in many of our medical schools. Interest in it is increasing, and I believe that in the course of time we shall see a much better integration of the basic sciences and clinical medicine in the medical curriculum.

At Ann Arbor, we have tried, in a measure, to carry this into our undergraduate curriculum of otolaryngology and ophthalmology. In this connection the undergraduate student commences his ophthalmology and otolaryngology in the junior year. At that time he is taken into the anatomy laboratory, where he studies the anatomy of the eyes and of the ears, nose, and throat with dissections and by lectures and quizzes. When in this manner you correlate anatomy with his clinical studies in the hospital, you find that you interest and inspire the student. He seems to carry on more successfully in both disciplines, and at the time of graduation he has a working knowledge of anatomy in these fields.

We give the student sixty-four hours of undergraduate education in ophthalmology and otolaryngology during the junior year. About half of this time in otolaryngology is spent in examining the ears, nose, and throat, to develop skill in making an examination and to differentiate the abnormal from the normal. At the same time he is given a few didactic lectures. For the most part, however, he is brought in contact with patients and taught something about the usual otolaryngologic conditions observed in the general practice of medicine. We do not try to make a specialist of him. We endeavor only to acquaint him with ordinary conditions discovered in the general practice of medicine.

Just a few words about resident instruction. First I should like to emphasize again that in our undergraduate teaching the time to inspire the student, and to convince him that otolaryngology and ophthalmology have important places in the general practice of medicine, is in his early formative years.

In resident instruction, as you well know, any curriculum of continuing education calls for a rotation service which creates a staff ranging from the assistant resident at the bottom of the scale to the young instructor at the top who is completing three or four years of continuing education in ophthalmology or otolaryngology. Again I shall not try to prescribe a definite curriculum for residents. Suffice it to say that they work shoulder to shoulder daily, assuming the function of teachers so that staff members in the upper ranks will teach their subordinates in the department. We try to give our staff teaching assignments with undergraduate students and experience in the clinical fields necessary to make them competent in ophthalmology and otolaryngology. Again they are returned to the anatomy laboratory, where they study in this field. Formal courses in pathology and other basic sciences, depending upon their particular interest, are offered to all of them.

I think it is important to point out that in medical education there is no line of demarcation between education, research, and the care of the sick. Each is dependent upon the other. Departments of otolaryngology and ophthal-

mology are only as strong as the chain that links together good teaching, sound research, and unimpeachable practice. I emphasize, therefore, that while the resident is engaged in a comprehensive program of continuing education in ophthalmology or otolaryngology he should be encouraged to do some research. This often calls for teamwork and the need to combine with colleagues in other fields to carry out noteworthy research which will contribute to the progress of medicine.

Creativeness is the greatest thing in life. What a joy and pleasure it is to discover some new therapeutic measure or to develop some surgical procedure that changes the failures of the past into the successes of the future.

Think of the enviable position we hold at the present time in otolaryngology and ophthalmology. We have a wealth of fundamental knowledge which builds a sound foundation upon which we can construct a superstructure of inestimable value to human welfare. We must encourage our young men and women to engage in research during their postgraduate study if they are going to obtain a full measure of training.

I want to point out also at this time that one of our greatest needs today is the recruitment and training of research workers. The field is exceedingly barren. We need to recruit individuals who are properly motivated for research and to give them the opportunity to investigate with freedom of thought, adequate financial assistance and the security of tenure.

In concluding I should like to say that we need have no apprehension about the future of ophthalmology and otolaryngology if we continue to develop academic leadership and maintain adequate programs of education and research in these specialties. Opportunities for practice in these fields are numerous at the present time. If anyone questions this statement, I need only mention that one of my senior staff members a few years ago advertised in an ethical professional employment agency and received more than one hundred and fifty invitations to practice otolaryngology in widely distributed geographical areas over the United States.

But we must exert every influence to establish comprehensive programs of ophthalmological and otolaryngological instruction in our undergraduate curriculums in order that we may indoctrinate the undergraduate student and provide him with the incentive for continuing education in these specialties. We must mobilize all of our resources for undergraduate and postgraduate instruction in ophthalmology and otolaryngology. I hope that we shall not fail in our solemn obligation and responsibility to educate well-qualified specialists in these fields, for they are urgently needed today to give service to all groups of our population, economic as well as geographic.

The Future Status of Ophthalmologists and Otolaryngologists in Medical Schools and Hospitals

THE VIEWPOINT OF A CHAIRMAN OF A DEPARTMENT OF SURGERY

FREDERICK A. COLLER, M.D.

ANN ARBOR, MICHIGAN

BY INVITATION

IT is a pleasure and an honor for me to be here. I know that I will take away more than I will bring, but it does give me the opportunity to say how much I owe to your specialties and my colleagues in these specialties in our medical school, not only in the teaching of students but in the care of patients in our hospital. I don't know any two departments in our clinical branches with whom our relations have been better or more profitable.

It is nice to talk about the future because no one can say whether you are right or whether you are wrong. I remember a little story told to us years ago by our eminent alumnus, Dr. William J. Mayo. This matter of the future came up and he said it reminded him of a county fair held in Rochester, Minnesota. There was a soothsayer there, a fortune teller in a tent, who told the past, present and future. Dr. Mayo was watching the tent when one of his friends, Mr. Donovan, came out. He went over to him and said, "Donovan, how was she? Was she pretty good?"

"Oh," he said, "she was wonderful, wonderful."

"Did she tell you the details of the past, present, and future?"

"Well," Donovan said, "she was not very good about the past and she was not very good about the present, but she certainly was right about the future."

Specialization is something that is comparatively new, and I think that most of us do not realize this. We rather think that specialization has gone on over hundreds of years in an orderly fashion, but this is not so. There was no need to specialize because there was not enough known in all medicine and surgery to require specialization. Any one person could encompass all the known information and could do all the known technical procedures because they were so few and really so simple.

The elder Gross, in his address on the founding of the American Surgical Association in 1879, made the flat statement that to his knowledge there was not one physician in the United States who was limiting himself to the practice of surgery. That is not quite true of your specialties which you had established a little before that time. After the Civil War you had a number of men in the country who limited their work to these fields. I think ophthalmology is the older of the two.

At this time the scopes were evolved—the laryngoscope, the otoscope, the ophthalmoscope, and so on, and these were very important in aiding accurate diagnosis in your fields. So you had a little

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advantage over other surgeons. Then, too, the geographical area, the anatomical area, of your interest is more accessible than are, for instance, the adrenals, which are well on the inside of the body, so that it is hard to learn very much about them.

This whole matter of specialization has to be thought over, and you are thinking it over this morning very carefully.

Occasionally I hear a friend of mine, a urologist, say, "We broke away from surgery about thirty years ago." That is like saying that a branch was broken off the tree thirty years ago. If this were true, that branch would be dead. A specialty can justify itself only when it is advancing knowledge for all of us in any special field of function or anatomy, including those areas in which special techniques are so important. But I like to look at specialization as a new and lusty branch growing from a tree and forming an important part of it. All of us have to add to our techniques in any field the broad knowledge that is evolved by our fellows in other fields of interest and activities. Five of the most important functions of living fall into your fields of interest—sight, hearing, smell, taste, and speech—and until we know all there is to know about these, your future is assured. I would say, if I had any criticism to offer, that not enough attention has been paid in the past to research in these functions.

Ophthalmology is, as I have already indicated, one of the oldest, if not the oldest, of the specialties. It has always seemed to me to be very compact, extremely well organized, and one of our most important specialties. People come to the ophthalmologist when their eyesight is in grave danger, and they have made their own diagnosis. First, "I cannot read a telephone book; I cannot read a newspaper," and then "I cannot read the signs along the highway," and so they decide when they will go and see about their sight.

Ophthalmologists established the first board of examination. I think their board is one of the most intelligent and comprehensively planned of all of the boards. It is very broad, and so I am impressed with the importance of the relation of the ophthalmologist to medicine at large. You all know more about this than I do, but I am giving to you the view of an outsider. Ophthalmologists must be, and they are, thoroughly competent internists, as well as surgeons, as they take an important part in the diagnosis of such general diseases as arteriosclerosis, hypertension, brain tumors, endocranial lesions of various sorts, and diabetes.

There has been very little sniping against ophthalmologists as surgeons. The casual, or the occasional, operator, is not going to take out a cataract. On the other hand, he is very likely to take out an appendix, an ovary, or even a tonsil because they are accessible, and he sometimes can do very little harm by attacking these organs. But I never heard of an unskilled person attempting, routinely at least, to carry out operations on the eye. The bad result is too obvious, and the patient and his, or her, family would object lustily, I am sure, if the eyesight were lost, whereas they would not object at all if part of the tonsil were left. They would not know anything about it until later. People must be able to see, and we must recognize the ophthalmologist as a most important member of the medical group. He helps all of us and he helps our patients.

Otolaryngology, I think, is in a little different position, and I believe that many otolaryngologists have not realized the important functions that lie in their field but have been led astray, like many other surgeons by the mechanistic viewpoint. When anesthesia was developed of

course, operations were then possible, and most operations that we do now were evolved at that time. But until 1910 they were carried out with a complete disregard and lack of knowledge about other things that the surgeon should know about the status of the patient. An operation was carried out whether the patient was in shock, whether he might die of peritonitis, or whether he was dehydrated and anemic. I give this indictment against all of us. The custom was prevalent and the results were not good. The patients did get well but our minds were focused on the mechanical aspect of surgery, and this was an error.

I still maintain that surgery implies a method of thinking. I do not like to call an operation surgery. "Surgery was carried out at nine o'clock this morning" is meaningless, since surgery is a branch of learning involving philosophical as well as technical principles, and if we deny that, we still keep ourselves in the mechanistic category.

A number of the organs treated by the otolaryngologist, as I have already said, are accessible to anybody. You all know full well that many physicians with no special skills or training began to attack the uvula, the tonsils, and various other areas of the body. They would open middle ears, of course. Some of them did it very well. In addition there were treatments that were very popular with otolaryngologists years ago, and all of these could be carried out by a person with very little skill. All you had to do was to have a chair and a probe with cotton or something and apply it to the nose. All of this overemphasized the mechanical approach, which was not a sound approach and which has now largely disappeared.

Then as science entered into medicine—and really experimental methods did not come back until the 1920's—we began to learn that one could elicit facts about the ear, for example, from the study of laboratory animals, whereas if one waited to develop his knowledge by observing patients, it would take him a lifetime or three lifetimes, because he sees so few of them. But the experimental method came in and science began to come to our aid.

You know what the sulfonamides did: an entirely new concept—attack against infections. Then, of course, came the antibiotics, and we have had a flood of these. It was said by many that this marked the end of otolaryngology. It simply marked the end of a false type of treatment of infections that was carried out by everyone in his office no matter how skillful his training had been. I think it was an awfully good thing for the real otolaryngologists that this change came, because it made lots of them stop and think, "What do we have to offer?" Of course, what you have to offer is what I have already mentioned, and that is a firmer and more vigorous attack on research and study of these primary functions which were almost forgotten for a time while the specialists were taking out tonsils.

Now we are very much interested in the fact that there are millions and millions of people in this country who cannot hear. You are studying those things and it is rightly so. But you now face the danger of losing all you have gained, through the encroachment of purely mechanistic groups.

It is interesting to me that within the past five years I have had at least six or seven letters from my friends in medical schools saying, "Our professor of otolaryngology is retiring. Do you think we should carry on with this department?"

Now that is a shocking thing. My answer was a simple question. I said, "Who is going to take over and do these

things that I find are done so well and so helpfully in our own clinic?" In some instances the answer was, "Well, the cancer surgeon is going to take over."

But the cancer surgeon is just reverting to that old mechanistic viewpoint that we had about forty or fifty years ago, and I am not going to let a cancer surgeon take out a brain tumor if I have one. Nor would I let him remove or attack in any way, shape or form any of the cancers that fall in your field.

Then again, others said, "Why, our plastic surgeon is going to take this over. It is an easy thing for him to slide into the tonsil. So the plastic surgeon will take over."

Another said, "He will be a combination of an oral surgeon and a maxillofacial surgeon."

This attitude places us back in the old mechanistic field that we are trying to get away from. We are trying to get into the field of function.

Now we have a new group, the head and neck surgeons, who seem to feel that such operations as laryngectomy fall entirely within their province. They are beginning to say, "These operations must be done by somebody in our society and we are going to see that the hospitals will not let anybody tackle them unless he is a member of our group." This is specialization carried to absurdity, because it has no meaning. None of these people are dealing with function. They may be competent operators, but this does not qualify any group to decide who shall do this type of operation and who shall do that.

Then, of course, endoscopy which came in with the laryngoscope has in large part passed on to other areas. The thoracic surgeon, the gastroenterologist, the anesthesiologist—ought to spend a time with otolaryngologists, so that they can get the fundamentals of this technique. Eventually, I have no doubt, they become skillful enough, but they could have learned more easily had they gone to the fountainhead of this type of examination and after that applied it in their own field.

In the last month I have been obliged to carry out tracheotomies on three patients in our ward who had had thyroidectomies. The nerves were not injured, but the tubes had been placed by unskilled, amateur anesthetists, those who are learning, and they had traumatized the larynxes so that we were obliged to put in tracheotomy tubes. That had never happened before. In the first place, we had never used a tube. But we have to use tubes now, and their placement requires skill and experienced judgment.

All this brings up the point of how much surgical training an otolaryngologist should have. I think he should have first class training, and in our hospitals he is trained largely by first class surgeons, our otolaryngologists. But he should know about shock, he should know about wound healing—all of those things are fundamental. I don't care whether you make an incision in the back, in the neck, in the chest, or in the throat, the healing is governed by the same orderly laws that govern the anterior portion of the abdomen. I don't care who operates upon any area of the neck; I don't care what he calls himself if he is competent to do it. But I feel that the people in surgery should incorporate various disciplines in their training.

A little contact with the neurosurgeons we should try to give all of your young men. And urologists — after all, your patients have trouble emptying their bladders at times. I like to see anybody who is going to do any surgical work be exposed to all the fields of surgery. Let's say surgery not to any particular part of the body but to all of them. Cardiac arrest occurs in your patients as well as in mine. We should be

able to handle it. Most of us are. We insist that every surgeon in our hospital develop skills for the recognition and management of this because you cannot call somebody. You have only three minutes.

But in any specialty, any branch of medicine or surgery, that is our hope of the future and our justification. You may say, "Well, let's wait until the physicists find out." But you will wait a long time. If you study the lag time in medicine, it is just unbelievable. We don't read their books and they don't know our problems; therefore we who know our problems should train the young man if he is a person who is interested in the technique of solving the problems.

The most important thing that faces all of us today is carrying out research in our own fields where we alone know the problems. It has paid big dividends since the experimental method came back in medicine and surgery, dividends comparable to those that have occurred in transportation since the advent of the jet plane.

Again I want to thank you for permitting me to participate in the program and to express my deep thanks to your colleagues who have helped me so much for so many years.

The Future Status of Ophthalmologists and Otolaryngologists in Medical Schools and Hospitals

* * *

THE VIEWPOINT OF THE CHAIRMAN FOR OPHTHALMOLOGY, TEACHERS' SECTION

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As you all know, over a period of some years in the Teachers' Sections of the Academy this view has been presented before. But I thought it might be interesting to question again the group of teachers in ophthalmology in order to see what the trend might be in undergraduate teaching. Like the secretary who gave the punch line "If you ask a silly question, you get a silly answer," I can assure you that perhaps some of the questions as they were sent out were silly, but you can never get the $64,000 answer to the question "Who does the teaching, and how does he do it, if he does it at all?" That has never been answered on a questionnaire.

The response to this questionnaire is interesting in that it shows that much of the conflict in the teaching of ophthalmology is due to failure of the curriculum committees to assign a sufficient amount of time, or to assign time at hours that are conducive to learning. When I went to Detroit I was allotted Friday afternoon from four to five to teach ophthalmology. Well, I have had a hard job teaching it on Monday morning from eight to nine; so I could not do it very well on Friday afternoon from

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four to five, and I doubt if anybody else could, because most of the students by Friday afternoon at four o'clock are well on their way to slumber or elsewhere.

We did put out some questions merely as a lead, along with the statistics, and I will give you my interpretation of some of the responses.

First the question, "Do you teach refraction?" The answers from 55 schools were 35 no and 20 yes.

Now that only shows the trend—how much refraction is taught. How valuable is the teaching? The mere fact that it is mentioned is of value. The idea of interesting the undergraduate students in our specialties is of marked value, so that they will be aware of them when they finish school.

When it comes to muscles, a subject much more difficult to teach than refraction, all but eight schools teach about the ocular muscles. All but five teach about the fundus. I don't know *what* they teach about it, but they teach something.

Glaucoma is getting a great deal of pushing; so they practically all teach about glaucoma.

In the over-all picture, taking the number of hours of teaching, some places do not teach any ophthalmology at all. So that is on the zero end. On the other side, one school gives 180 hours of lectures, and I think probably that might be a little too much, but I am not questioning it. In the over-all picture, the average is 16 hours throughout all the schools.

The next question seems to be silly. I asked, "Do you assign any laboratory work?" Surprisingly enough, 11 schools give some laboratory work in ophthalmology, especially in physiological optics, and 40 do not.

Now reading material could be assigned in all medical schools, and perhaps it might be one way to get more ophthalmology to the students. Forty-one of the schools assign reading material.

The number of clinical hours may be all the way from zero up to 364. The over-all average is 41 hours.

The total hours of teaching run from zero to 392; and the average is 60 hours.

The following question was intended merely to find out what the ideas of the teachers were: "What years in school do you teach ophthalmology?" Interestingly enough, this question was also included in a questionnaire several years ago. The response at that time indicated that ophthalmology was taught almost entirely in the senior year in school, the fourth year, and usually in the fourth quarter of that year. Now we find 12 schools teaching ophthalmology in anatomy and physiology classes. There is a trend toward starting out in the first year and including some ophthalmological teaching throughout the course in the medical schools.

The next question, "What time of the year do you teach?" was again put with the idea of determining how important ophthalmology is to the school. Again, the response indicated that ophthalmology is taught throughout the year, with no definite quarter favored, although the trend is for ophthalmology to be taught toward the end of the senior year.

Days of the week assigned for ophthalmology again show no definite trend, although they are usually toward the end of the week. Morning and afternoon periods ranked equally. A few men have eight o'clock classes, and the worst hour was on Friday afternoon from five to six.

The question of whether refraction can be taught or should be taught was answered, in the main, no. Forty-four men answered that refraction could not be taught or that it should not be taught.

Interestingly enough, there were 13 or 14 professors who were more or less well satisfied with the way they were teaching ophthalmology. So, again, we are right back to the question, "Who is doing the teaching and how well does he do it?" We haven't the answer.

Out of the response to our questionnaire we may evolve a cross section of methods of teaching that will be of value to someone starting to teach. However, last week in this hotel there was a meeting of school educators trying to find out what the trends in general education are. One evening I sat down and talked with the president of one university about trends. In answer to my $64,000 question he said, "There is one person that I, as president of a university, can't control and that is the professor. He teaches just as he darned pleases; that is your answer." That is the answer also in ophthalmology and otolaryngology.

Now let me say further that if we want men to go into ophthalmology as graduate students, or into otolaryngology, we must stimulate them in the undergraduate years. They should get a sufficient number of hours to make them interested or we will not get them when they graduate. They will go into the specialties that have been presented so thoroughly that their interest has been aroused. If we wish to have a sufficient number of men entering our specialties, we must do a job of undergraduate education.

There is one further step. The trend in the medical schools shows that the training is bearing toward general practice, much more so than you would think by reading the papers. Many of the state schools are primarily set up for general practice. That, to me, is not a hazard or a danger to us; we can use men in our specialties who have had sound training in general medicine. Such a man should be a good graduate student. Thinking about it from a positive point of view, it might be a very good way to follow along and get into this picture by teaching the undergraduate student to be a good general practitioner. Maybe after he has had enough of general practice, he will go into the specialty and make good at it.

I wish to say at this time that I appreciate very much the time taken by the men answering these questions, because I felt, as probably many of you did, that they didn't mean very much. One of the men wrote with a green pencil, "Ruede, what the hell do you want to know?" All I was looking for was the trend in undergraduate education.

I can say that most undergraduate education in ophthalmology is insufficient. I don't believe that it is poorly done; for I think that we have men of high caliber in ophthalmology. I think that the men whom we have in ophthalmology will do just as good a job as they can do in the time allotted to them. I do believe that we can, in some places, do a little more teaching in ophthalmology. You and I know that we need many more men in our specialty if we are going to replace the people who are passing along or retiring. Since this questionnaire was put out, three professorial deaths have occurred, and 12 men who were sent questionnaires have retired, are changing their professorships, or are allotting them to someone else. So you see that the ever-changing teaching problem is sufficient to warrant that we at least keep enough men entering the field of ophthalmology to replace those who are dying or retiring. If we do not, the lesser specialists, or those with poor training, will take our places and the public will then have to beware.

The Future Status of Ophthalmologists and Otolaryngologists in Medical Schools and Hospitals

THE VIEWPOINT OF THE CHAIRMAN FOR OTOLARYNGOLOGY, TEACHERS' SECTION

GORDON D. HOOPLE, M.D.

SYRACUSE, NEW YORK

I SHALL try to be both practical and brief. In order to know where we are going, it is well to know where we are and from whence we have come. I have sent a questionnaire to the head of the department of otolaryngology of each medical school in the United States. There are 73 of these. Fifty-nine chose to respond. I would like to give the questions and answers, comment upon some of them, and then see whether they help to establish our position and tell us something about the future.

Thirty-three of the 59 departments have autonomy, while 26 do not. I am one who formerly was concerned about the fact that nearly half of otolaryngologic teaching is under the aegis of another department, usually surgery. After looking over the replies to this questionnaire I am not as worried as I was. Some of the very best teaching in this country (a personal opinion) is done from departments which do not enjoy autonomy. Conversely, some of the weakest departments (again a personal opinion) are autonomous. The skill, devotion, and particularly, the enthusiasm of the head of the department are much more important than autonomy. I was brought up and served in an autonomous department. How I would have behaved under the direction of another boss, and possible restrictions emanating from him, I do not know, save that I know I would have hollered long and loudly. I have the feeling that dedicated skill and enthusiasm cannot long be denied. If you are the chairman of a department which is under another man and feel that your teaching is hampered, look to yourself. This may be the answer.

As to the staffs of the 59 departments, 17 chairmen, almost one third, are full-time staff members. I do not have figures to prove it, but I am sure that this percentage was much lower ten years ago. Eight additional departments have full-time teachers, even though the chairman does only part-time teaching. The majority of these 25 staffs have two full-time teachers, but one has as many as ten. The score for the voluntary clinical teachers who help teach our specialty is amazing. Two departments get along with only one, but in the metropolitan centers the number rises many fold, in two instances to 45 and 52 respectively. My sole comment about this is that it would take an unusually good executive to manage 52 otolaryngologists! What is even more interesting, and surely this is a modern trend, 17 of the 59 departments have one or more full-time research otolaryngologists. Several of these full-time research men are in de-

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partments in which the chairman is a voluntary teacher. This is progress indeed.

The difference in the number of hours devoted to the teaching of otolaryngology in the medical schools of the United States is almost unbelievable. One school reported that there were available to the department a total of only 12 hours. The gamut of hours allotted ran from this meager 12 hours to 152. Here are the actual figures:

10-20	hours	2
20-30	hours	3
30-40	hours	7
40-50	hours	10
50-60	hours	6
60-70	hours	8
70-80	hours	2
80-90	hours	2
90-100	hours	2
100	hours	1
Over 100	hours	7

There will be a later comment on this bizarre picture.

The relationship between teaching hours in clinics and didactic hours is relatively constant. While 51 of the 59 schools still retain didactic lectures to the entire class, almost all of these spend less than 20 per cent of the total teaching hours in these didactic endeavors. When the 8 schools in which there is no didactic teaching at all are added, it can be seen that the great majority of otolaryngologic teaching in this country is clinical in character. A notable exception is one school which allots only 16 hours to clinical teaching and 23 hours to didactic lectures. No other school approximates this division of the work.

Four schools do some of their teaching in each of the four years of their medical course. This means that they must direct the teaching of otolaryngologic anatomy. This speaks for a strong department. Three schools teach otolaryngology in the fourth year only. The majority teach in the second, third, and fourth years, or in the third and fourth years.

The clinical teaching is done with student groups of varying sizes. Some schools are fortunate enough to be able to teach in groups having as few members as three or four. An average group would seem to be about eight. Four schools teach groups of over twenty!

The questionnaire contained four questions which would indicate modern trends in the teaching of otolaryngology, both undergraduate and graduate. The first of these asked if there was a departmental audiologist. Thirty-seven replied that they did employ one or more, but 22 indicated that they did not employ any. This, I feel, is a relatively low score, but if the question had been asked ten years ago, I am sure there would have been very few, if any, departmental audiologists.

The second of these questions relating to modern trends asked if the department had access to a reasonable number of cases of malignant lesions of the head and neck. The reply to this question was very gratifying. Fifty departments said that these were available to them and that they were taking advantage of it.

A third question asked if the department was teaching bronchoesophagology. There was a good score on the answer to this inquiry. Fifty-two departments still teach bronchoesophagology. If otolaryngologists are teaching this subspecialty, there is good likelihood that the specialty can retain its fair share of these procedures. Only good teaching and good performance can maintain this status, however.

A final question was asked concerning the teaching of otolaryngologic plastic procedures. Here the score was not so high. Forty-four replied that they taught such procedures, while 15 said that they did not. Here again, good teaching and good performance will permit otolaryngology to broaden its scope.

Continual improvement in teaching and in performance is mandatory.

Several chairmen suggested action which the Teachers' Section might take. We should remember that the Teachers' Section of the Academy is not a legislative body. It can make no rules nor can it enforce regulations. It is advisory only. Thus, no action can be taken in view of this information which has been accumulated. However, we would be foolish and stupid if each of us did not give consideration to some of these facts in the light of our own particular situation.

What may we learn from this information just presented?

After one has reviewed fifty-nine answers, it is obvious that the same practices cannot be employed effectively in each of these medical schools. A school located in a metropolitan center cannot be run in the same manner as one situated in a relatively small community. A school committed to a full-time faculty will not function the same as one manned in large part by a voluntary group. These variables exist, and we must take cognizance of them. To point out these differences, one teacher pleaded strongly for the inclusion of one year of surgical residency in the total otolaryngologic training period. Another equally devoted and equally eloquent teacher wrote vehemently against such an inclusion. One of the most effective programs of otolaryngologic teaching in this country is administered by the Academy's president. I seriously doubt that there are more than three or four other schools which could effectively follow the pattern for teaching otolaryngology which he has set up. Each institution must adjust its program to tradition, available man power, local facilities, allotted monies, etc.

Also, there are some programs among the fifty-nine which do not reasonably follow the pattern set by the others. It would seem wise for the chairmen of these departments to begin to make moves in the direction which the majority have taken. For instance, departments which have less than forty hours of teaching for undergraduate otolaryngology do not seem to be in line with the general picture. Likewise, good clinical teaching cannot be done well in student groups of twenty or more. Departments which do not employ a staff audiologist might do well to begin moves to obtain one. Only seventeen departments employ a full-time research otolaryngologist. The acquisition of such a fellow will strengthen any department. It will stimulate the interest of every member of the group and will undoubtedly awaken research activity in some of them. The departments not allowed access to a reasonable number of malignant lesions of the neck should take steps to become worthy of such assignments. Each one of us should learn the lessons applicable to our own situation and take appropriate action.

What should encourage everyone of us is the fact that this survey shows that the swing toward better, more intelligent, and more complete care of the multitude of diseases which involve the ears, nose, and throat has begun. Ten years ago there were some pessimists who said otolaryngology was on the way out, a dying specialty. Today the teaching of otolaryngology, as shown by this survey, is more vigorous than ever, and the scope of this teaching has broadened immeasurably. In addition, twenty-five of the fifty-nine chairmen stated that they were neither complacent nor satisfied with their teaching. These are healthy signs indeed.

What of the future? There will be changes, because change is inevitable. There is a trend in medical colleges to allow less time to the teaching of the specialties, and this may be felt in our field. However, one may well ask, "For

what are the medical colleges training doctors?" I think the inevitable answer for undergraduate medical teaching is the preparation of general practitioners. Specialization must come later. If this is the correct answer, then the hours devoted to the teaching of undergraduate otolaryngology should be increased rather than diminished. This is necessary because 25 per cent, or more, of a general practitioner's work is otolaryngologic. This has been brought out by surveys conducted by Lierle and Boies. The general practitioner should receive better training in our field than he has in the past. It is entirely possible that with the newer emphasis on the more complicated aspects of our work, e.g., malignant lesions, plastic procedures, endaural and rehabilitative surgery of the ear, and audiology, we should relinquish some of the simpler procedures of our specialty to the general practitioner and reserve our energies for these more challenging endeavors. If such a change were to be made and if these subjects were taught well, I am sure that there would be more undergraduates who would become interested in our field as a specialty, and applications for our residencies would increase many fold.

On the graduate side, I am sure that there will be further specialization in our field than there has been in the past, for a really skilled operator in the area of malignant lesions of the head and neck cannot be equally able in the area of endaural surgery. This is but one example. This change in emphasis, both for the undergraduate and the graduate, will require better and more devoted teaching. There are increasing challenges ahead.

Finally, it seems obvious that departments of otolaryngology will have the place in the medical sun which they deserve. Just this and no more. If teaching and practice are less than the best, they will be relegated to a secondary position. What is encouraging, in the light of this present information, is that the trend toward better teaching and more excellent practice in the great majority of our medical schools is in full swing. The day for doubts is really over. Recognition has begun because otolaryngology has deserved it. May we, who are responsible for the teaching in the days yet to come, realize this and go on to new and better goals for this most intriguing and interesting of all specialties.

TRANSACTIONS

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Report
AAOO GROUP INSURANCE
1956-57

Disability Income Protection

This program is presently providing income protection to over 1900 AAOO members with weekly benefits in excess of $142,000. Claims and reserves for the fiscal year 1956-57 will exceed $175,000. Administrators report that each week more AAOO members are taking advantage of their privileges by applying for coverage in this program.

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There is over $15,000,000 of accidental death, dismemberment and loss of sight coverage in force for insured AAOO members. This program provides our members "extra" protection at minimum group rates.

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AAOO members covered under this program have approximately $5,000,000 "in force" coverage to this date. Here is maximum coverage ($10,000) to offset expenses incurred during periods of disability due to polio and ten other dread diseases. This group premium is exceptionally inexpensive.

Professional Liability Insurance

The newest service offered AAOO members is enjoying phenomenal acceptance throughout the country. Presently there is in force over $82,000,000 in coverage with insured members. This membership privilege provides maximum security against malpractice suits with limits up to $100,000/$300,000. The minimum group rate schedule warrants investigation by every AAOO member. For information write to AAOO Group Insurance Administrators, Suite 1027, 175 West Jackson Boulevard, Chicago 4, Illinois.

Business Expense Disability Insurance

Members of the AAOO Executive Council have given serious consideration to this additional membership privilege, and in the very near future the program will be made available to all AAOO members. This coverage will protect the insured member against total loss incurred while disabled due to sickness or accident, so far as business expenses are concerned in the normal operation of the insured's office. Benefits will range from $200.00 monthly up to as much as $1,000.00 monthly. The group premium schedule will afford the insured member a great savings. Information can be obtained by writing to AAOO Group Insurance Administrators, Suite 1027, 175 West Jackson Boulevard, Chicago 4, Illinois.

LETTERS TO THE EDITOR

June 3, 1957

Dear Doctor Benedict:

In an article entitled "The Treatment of Retinal Detachment by Vitreous Implants" (Trans. Amer. Acad. Ophth. and Otol. 61:194, 1957), Dr. Donald M. Shafer states that vitreous "has been deliberately contaminated with hemolytic streptococci and staphylococci, and in forty-eight hours at 40° F it is sterile on blood agar culture." During the past year, we have been conducting a series of studies to determine whether human vitreous does have self-sterilizing properties. Although this work is in a preliminary stage, we feel it necessary to report our results. We have not been able to demonstrate that vitreous humor possesses bactericidal properties. The following table shows the results obtained with various organisms which were inoculated into fresh human vitreous incubated at 37° C. The organisms were recovered in pure culture in thioglycollate within twenty-four hours after the primary inoculations.

Furthermore, refrigerator temperature did not appear to have any effect on the inhibition of the growth of *S. pyogenes* by human vitreous. In view of the results of this preliminary study, we agree with Dr. D. K. Pischel (the discusser of the paper by Dr. Shafer) that aseptic techniques for the removal of vitreous and routine sterility cultures are necessary.

Sincerely yours,

[Signed] Ted Suie, Ph.D.
[Signed] Stanley Sroufe, M.Sc.

June 12, 1957

Dear Dr. Benedict:

I was very pleased to learn of the investigations of Suie and Sroufe on the possible bactericidal properties of human vitreous. I only wish that we had time and money to go into it more thoroughly ourselves.

ORGANISM	NORMAL HUMAN VITREOUS	HEATED HUMAN VITREOUS 70° C FOR 1 HOUR	CONTROL (SALINE SOLUTION)
S. pyogenes (C+)	Growth	Growth	Growth
K. pneumoniae	Growth	Growth	Growth
E. coli	Growth	Growth	Growth
P. aeruginosa	Growth	Growth	Growth

It is noted that they get "growth in normal human vitreous," but I don't know the temperature, so presume it is body temperature, also in vitreous heated to 70° Centigrade. These temperatures, of course, we have not utilized in the technique of vitreous implant and our studies have been on vitreous at 40° *Fahrenheit.*

Of the hundreds of samples of vitreous that have been cultured since 1947 we have never had a positive culture on blood agar, *provided* the vitreous had been refrigerated for 48 hours at 40° Fahrenheit. Many cultures are positive if the vitreous is at higher temperatures. As I stated in my discussion of the paper, "the vitreous must be sterile . . . is a fundamental point, and the refrigeration interval appears essential." Of clinical interest is the confirming fact that in over 200 operations using human vitreous refrigerated for 48 hours, using the technique described in the article, we still have not had one case of endophthalmitis. As stated above, the duration of refrigeration at the lower temperatures appears to be essential, but I certainly will welcome the results of any further studies they make in this interesting material.

Very sincerely yours,

[Signed] DONALD M. SHAFER, M.D.

From the Oldest Living President

The following letter has been received from Dr. John Edwin Brown, a Fellow of the Academy since 1901 and President of the Academy in 1916.

July 16, 1957

Dear Doctor Benedict:

I presume you have thought me dead — professionally, if not corporeally. Physically I am fairly well preserved, despite coronary disease of long standing and an increasing limitation in hearing—nerve type—that hearing aids only partly overcome. Were it not for this last I should turn out for Academy Meetings as a long surviving ex-President, but to be among men few of whom I know now and not understand what is said—! deters.

I spend my winters in the South—Orlando Winter Park, Florida. My greetings and appreciation for your dedication to the American Academy of Ophthalmology and Otolaryngology.

[Signed] JOHN E. BROWN

INDUSTRIAL NOISE AND HEARING LOSS

In this issue, we present some discussion on one of the most difficult aspects of noise in its relationship to hearing loss. The problem of assessing noise exposure, sometimes of even adequately describing it, will always be the central difficulty in the diagnosis and prophylaxis of noise-induced hearing loss. Some of the reasons for this difficulty are brought out in the answers to the question "What is the meaning of noise exposure?"

Opinions expressed in the following paragraphs are those of the individuals named and do not necessarily represent the opinion of the Subcommittee on Noise in Industry as a whole.

ARAM GLORIG, M.D.
Research Center
Subcommittee on Noise in Industry

Questions and Answers

Question: What Is the Meaning of Noise Exposure?

Answer: ARAM GLORIG, M.D.

Noise has been defined as "any unwanted sound." Its over-all level and frequency characteristics may be measured at any instant on a time scale. Noise exposure, on the other hand, includes a third measurement—time.

There are two important factors of exposure to be considered:

1. How is the noise distributed over a period of time?
2. What is the total time over which the exposure continued?

Any hearing loss alleged to be due to noise exposure must be evaluated on the basis of over-all level, frequency characteristics, time distribution, and total time of the noise exposure. Noise-induced hearing loss is related to "noise exposure" not just to "noise."

Question: What Is the Meaning of Noise Exposure?

Answer: D. E. WHEELER, PH.D.
Field Representative
Subcommitee on Noise
in Industry

Subject to certain limitations, noise may sometimes fit into the category *Physical Agents of a Hazardous Nature,* a term used by physicians to describe solvents, gases, toxic dusts, and other industrial products known to be potentially harmful when present in sufficient concentrations over sufficient periods of time. When man is in an atmosphere contaminated by such an agent, he may be undergoing a hazardous exposure. With reference to noise exposure, however, this statement loses some of its apparent simplicity as we learn more about the ways in which industrial noise is produced.

If all industrial noise were constant as, for example, the heat from a forging furnace is constant, we would find noise exposure relatively simple to describe. Probably we would need only a simple number, or pair of numbers, standing for the amount of noise, and another number for the length of time that any person spends in the presence of the noise. Unfortunately, noise cannot be described satisfactorily by a single number and, furthermore, noise is rarely ever found to be truly constant in industrial processes. What is even more important is the fact that the combination of noise and man's activity in and out of noise is almost infinitely variable, as indicated by the following statement:

> Noise exposure is sometimes the direct result of the individual's activity, e.g., the isolated chipper working on a steel plate, sometimes the result of machine processes around which operators work but do not directly control, e.g., operators servicing products along a con-

veyor line, and sometimes exposure is the result of presence in an area where the noise produced is not related to the individual's own job, e.g., electricians installing lines in a boiler shop where chippers are operating. In the first example (single chipper), the workman creates his own exposure, whereas in the other two examples, noise exposure is the result of the activities of others. In the second example (conveyor line operators), however, the people involved are likely to be exposed most of the day, whereas the chipper and the electricians are only intermittently exposed.

These examples illustrate the fact that not only is noise variable but also that wide variations exist in the amount of time spent by workers in noise.

It is quite likely that we will some day possess better methods of describing noise exposure. Pending that day, however, we ought to exercise caution when assessing the possibility of noise exposure as the agent responsible for hearing loss. The physician should know that an unqualified statement about "work in noise" is *not* sufficient evidence of a hazardous noise exposure. He should acquaint himself with the important details of the job itself, particularly with the kind of noise present, the regularity of daily exposure, and the total length of service time in noisy environments of any kind.

Question: What Is the Meaning of Noise Exposure?

Answer: D. E. WHEELER, PH.D.

Based on comments from
WALTER ROSENBLITH
Professor of Bio-Communications
Massachusetts Institute of Technology

The meaning of noise exposure is dependent upon the values attached to noise and to the time spent in noise, i.e., exposure time. These two terms require measurement. It has only recently become possible to measure sound, and modern instrumentation for this purpose began with "over-all," or single number, descriptions of noise. Noise can be defined only as "unwanted sound." It is commonly, *although not necessarily*, made up of many frequencies varying in strength. Thus, a single-number description of noise is inadequate to distinguish among the many possible combinations of its component frequencies. Instruments have been made available for subdivision of sounds into certain preestablished sections, called "octave bands." These subdivided measurements certainly provide better information about the frequency characteristics, or "spectrum," of a noise, but they are not readily reducible to a single number.

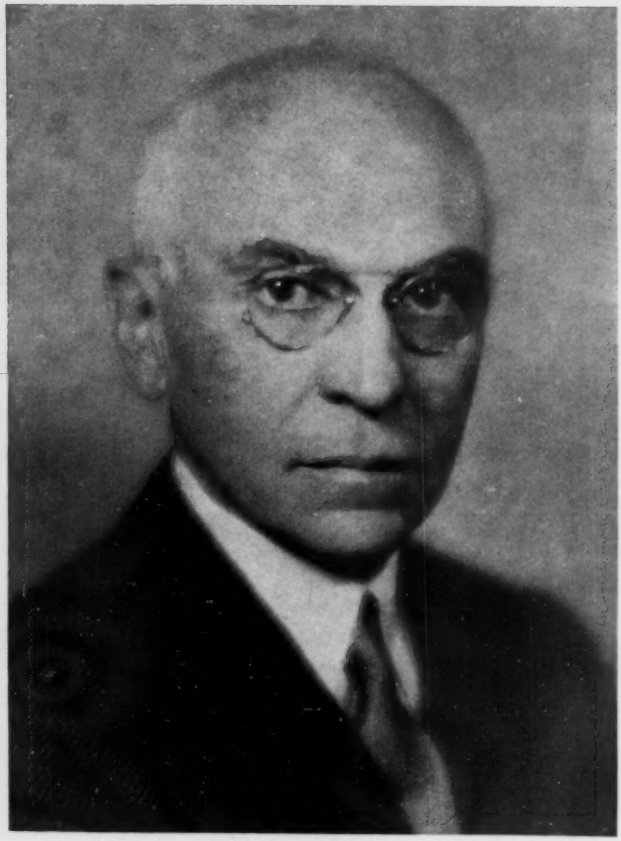
Knowledge of the noise spectrum appears to be necessary when we attempt to relate noise exposure to its effects upon hearing. The spectrum will tell us to what extent vocal communication is impeded or prevented in the presence of noise, but we cannot yet confidently predict the permanent changes, i.e., hearing losses, which result from noise exposures of all types. Observations of the effects of steady noise, that is, noise with a stable spectrum and minimal variation from time to time, were shown by the work of Subcommittee Z24 X 2 to produce increasing average net losses (in the frequency range important to speech communication) as exposure to such noise increased. The descriptions of noise exposure in the Z24 X 2 report are representative of the way we currently state noise exposure, that is, specifications of sound pressure level in various octave bands (spectrum) and the number of daily hours a given individual has been exposed to that spectrum for a given number of years. At the present time, some effort is being made to develop a more formal statement of noise exposure, in which the energy-time relationship composes a scale. If this scale can be applied successfully, it will be for

prophylactic reasons, that is, an attempt will be made to "prescribe" the maximum safe dosage of noise per given length of time. If the assumptions underlying the development of this scale can be validated, the scale might represent a more sophisticated description of noise exposure than we currently employ. But it still will be hampered by many limitations, chiefly the obstinacy with which industrial noise exposures refuse to conform to simple descriptive schemes. Noise exposures are rarely continuous, even during the course of a single work day. This is true because either the noise itself varies or workers move in and out of areas where noise is present, or both. Even if a noise source operates constantly, the noise produced may have peaks considerably higher than the noise average (peak factor), and again, we have difficulty in fitting such noises into a simple descriptive scheme. We are not justified in assuming that octave-band analysis of sound will provide the best correlation of noise exposure with hearing loss. Lastly, we must note that describing noise exposure with many numbers will always be an unwieldy process. The work of future research may yield some method of reducing these descriptive terms, but at present we lack the data which are necessary for such a reduction.

1954 WISCONSIN STATE FAIR HEARING SURVEY

A statistical and clinical report on data collected in the 1954 Wisconsin State Fair Hearing Survey, conducted by the Subcommittee on Noise in Industry, is now ready for distribution. Copies may be obtained free on request from W. L. Benedict, M.D., Executive Secretary-Treasurer, American Academy of Ophthalmology and Otolaryngology, 15 Second Street S.W., Rochester, Minnesota. Send postcard with name and address.

In Memoriam



FRANK EARL BURCH, M.D.

1876 - 1957

Frank Earl Burch died suddenly in Duluth, Minnesota, July 1, 1957, age 81 years. He had been ill for a short time with cardiac decompensation. He was born on March 27, 1876, at Menomonie, Wisconsin, the son of Newell Burch and Susan Paris. His father, a general merchant at Menomonie, was one of the early captives of the South and had spent more than two years in Andersonville Prison during the Civil War.

Doctor Burch received his early education at Stout Institute, spent two years at the University of Minnesota, and graduated from the University of Minnesota Medical School in 1897. He served his internship at St. Luke's Hospital in St. Paul

and then entered general practice in Glencoe, Minnesota. He was married in 1901 *to Katherine Jackson, who died some ten years ago. He left Glencoe in* 1903 *and took up the study of Ophthalmology and Otolaryngology at Johns Hopkins University, the Moorfield Hospital in London, and the University of Vienna, spending two years in postgraduate study.*

He began the practice of Ophthalmology and Otolaryngology in St. Paul in 1905 *and soon acquired a large practice. He was appointed a staff member of the University of Minnesota Medical School and later was placed in charge of the graduate teaching. During World War I he was commanding officer at Camp Dodge, Iowa, until the end of the war. Following his discharge, he limited his practice to Ophthalmology exclusively. In* 1927, *following the death of Dr. William Murray, he was appointed chief of the department of Ophthalmology at the University of Minnesota, a position which he held until he was made Professor Emeritus in* 1944.

In January of 1940 *he was visiting professor for six months to Peiping Union Medical College, which is supported by the Rockefeller Foundation. Until his retirement in* 1946, *he carried on a very large surgical practice both at the University and also at the Miller Hospital in St. Paul. He was a hard-working student and an early investigator into the subject of retinal detachment, following the work of Gonin.*

Dr. Burch was also active in medical societies. He was a past president of the American Academy of Ophthalmology and Otolaryngology, and had served as president of the Ramsey County Medical Society, the Minnesota Academy of Medicine, and the Minnesota Academy of Ophthalmology and Otolaryngology, and as vice chairman of the Section on Ophthalmology of the American Medical Association. He was also a member of the American Ophthalmological Society, and was active in the American College of Surgeons.

Interested intensely in the subject of prevention of blindness, Dr. Burch was founder of the Minnesota Society for the Prevention of Blindness and an advisor to the National Society. In 1949, *during the Minnesota Centennial celebration, he was cited by the Minnesota Historical Society as one of the* 100 *living greats of the State of Minnesota. Again in* 1952, *he received a plaque from the University of Minnesota, being cited as one of the distinguished graduates of the University. He devoted much time and effort to the University and collected a large number of rare and valuable volumes in ophthalmology which have been turned over to the University library. Through his efforts and by his personal gift, a research fund of a quarter of a million dollars was established, which bears his name.*

Dr. Burch's hobbies were fishing, book collecting, and hunting. He was an ardent and expert fly fisherman, having fished trout all the way from the Canadian border to Hudson Bay, and from the East to the West Coast. He greatly enjoyed fishing for Atlantic salmon in Newfoundland and Labrador. Since his retirement in 1946, *he had spent his summers at Encampment Forest on the north shore of Lake Superior, where he cultivated trees and flowers and enjoyed the cool summer weather of that locality. During the winter months he traveled extensively. He had visited many foreign countries and had traveled six times around the world. He had completed his last trip just a year before his death. During his travels he collected a large number of objects of art and other interesting articles for his home at Encampment Forest.*

Dr. Burch is survived by two children—Edward P., a resident of St. Paul, and Katherine Taylor of California, and by three grandchildren.

In Memoriam

Frank Earl Burch.....St. Paul, Minnesota
July 1, 1957

Murray McColl Dewar.....Grand Rapids, Michigan
March 30, 1957

William Edwin Dickerson.....Danville, Virginia
March 28, 1957

John Walker Fairing.....Shaker Heights, Ohio
April 12, 1957

William Hugh Folsom.....Fond du Lac, Wisconsin
February 1, 1957

Halvor Larson Harley.....Atlantic City, New Jersey
March 16, 1957

Thomas Edmond Hughes.....Richmond, Virginia
April 2, 1957

Mark Walton Jacoby.....Cleveland, Ohio
March 28, 1957

Lavell Hall Leeson.....Vancouver, B. C., Canada
June 29, 1957

Joseph Davidson Lewis.....Santa Barbara, California
May 31, 1957

Olney B. Monosmith.....Lorain, Ohio
March 8, 1957

Eugene Lee Myers.....St. Louis, Missouri
March 12, 1957

Louis M. Pearlman.....New York, New York
1953

Edward Cecil Sewall.....Palo Alto, California
April 10, 1957

Francis Xavier Siegel.....Cincinnati, Ohio
April 10, 1957

Frank Robert Spencer.....Boulder, Colorado
April 20, 1957

William Francis Steinbugler.....Brooklyn, New York
April 7, 1957

Gilbert Stevens Tabor.....Millerton, New York
April 4, 1957

Harry Allen Van Osdol.....Indianapolis, Indiana
April 10, 1957

C. B. Wylie.....Columbus, Ohio
May 8, 1957

THE INTERNATIONAL ASSOCIATION OF SECRETARIES OF OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETIES

Argentine Society of Ophthalmology

Date: The third Wednesday of each month from March to December at 9:30 p.m.

Place: Argentine Medical Society, Santa Fe 1171, Buenos Aires.

Secretary-General: Dr. Jorge F. Balza
Belgrano 1675
Buenos Aires
Argentina

Sociedad Chilena de Oftalmologia

Time: Third or fourth week of November 1958.

Place: Santiago, Chile.

Name of meeting: Jornades Nacionales de Oftalmología.

Secretary: Dr. Raúl E. Valenzuela—Augustinas 715 of 104, Santiago, Chile.

Montreal Ophthalmological Society

The first meeting of the Montreal Ophthalmological Society was scheduled to take place at the Royal Victoria Hospital on Thursday, October 10, 1957. In view of the fact that the New Ste-Justine Hospital is moving to its new quarters, it was decided that the first meeting of the MOS should be held at the New Hospital on Wednesday, October 23, 1957, in the early afternoon.

The Ophthalmological Society of South Africa

Date: September 16 to 21, 1957.

Place: Durban, Natal.

This will be part of the Congress of the Medical Association of South Africa. American ophthalmologists are cordially invited to attend.

Organizing Secretary:
Dr. B. Crowhurst Archer
112 Medical Centre
Field Street
Durban, Natal

SIXTY-SECOND ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

OCTOBER 13 TO 18, 1957

PALMER HOUSE

Chicago, Illinois

OFFICIAL NOTICES

Convention Call

Under the authority of the Constitution and with the approval of the Council, I herewith proclaim that the Sixty-Second Annual Session of the American Academy of Ophthalmology and Otolaryngology will convene at the Palmer House, Chicago, Illinois, on Monday, October 14, 1957, at 9:30 a.m., and will continue through noon of Friday, October 18, 1957.

ERLING W. HANSEN, M.D.
President

Attest:
WILLIAM L. BENEDICT, M.D.
Executive Secretary-Treasurer

Business Meeting

The Annual Business Meeting of the Academy will be held in Private Dining Room 18 of the Palmer House on Thursday, October 17, 1957, at 5:30 p.m.

The Order of Business:

1. Call to order
2. Report of Executive Secretary-Treasurer
3. Report of the Senior Member of the Council
4. Election of Fellows
   (See Candidate List, p. 544)
5. Election of Officers
6. Unfinished business
7. New business

All Fellows and candidates for election to Fellowship are urged to attend.

Council Meetings

The Council of the American Academy of Ophthalmology and Otolaryngology will convene at nine o'clock, Saturday morning, October 12, 1957, in Private Dining Room 4 of the Palmer House, Chicago. There will also be a meeting of the Council on Wednesday, October 16, at 12:45 p.m. in Private Dining Room 5. Members desiring to be heard or to present business will confer with the Executive Secretary-Treasurer for appointments.

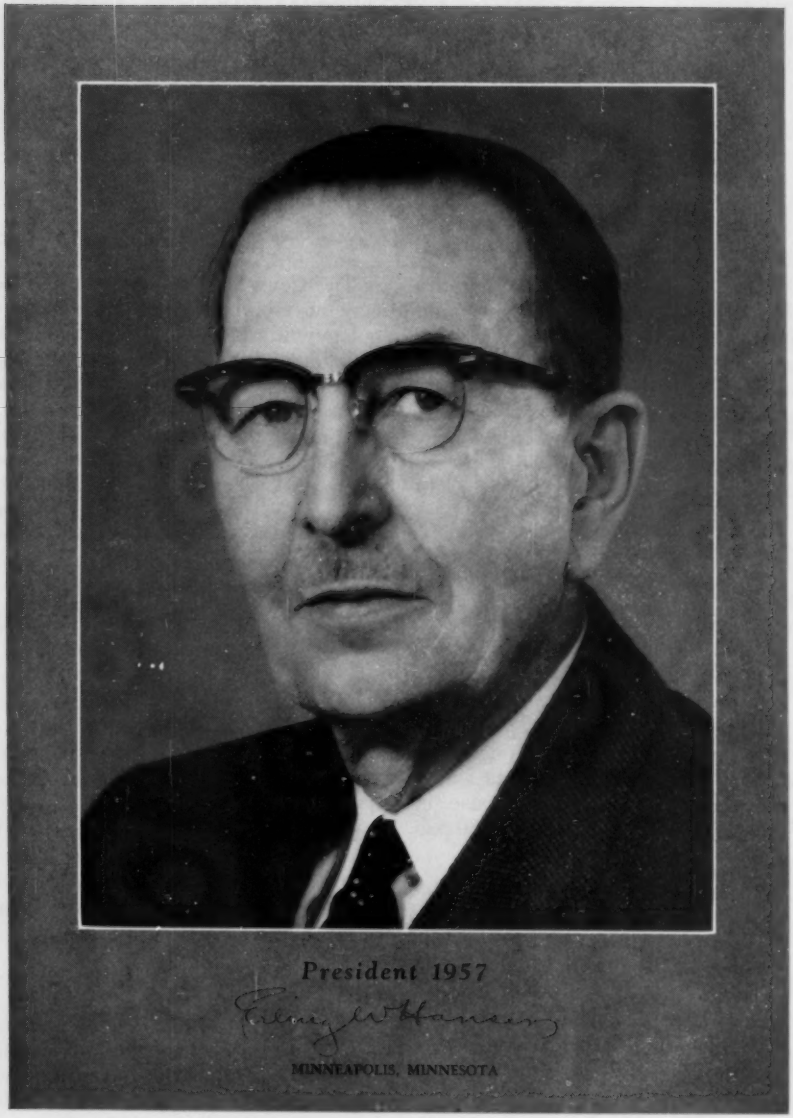
ERLING W. HANSEN, M.D.
President

New Business

Proposals for new activities often are presented too late during the Academy session to afford time for deliberation. Therefore, new items requiring Council action should be presented in writing to the Executive Secretary-Treasurer early so that the Committee concerned may have an opportunity to study the matter prior to presentation to the Council.

Public Relations

Contributors to the scientific program are requested to send copies of their papers to the Secretary for Public Relations, Glen G. Gibson, M.D., 2031 Locust Street, Philadelphia 3, at the earliest possible moment.



President 1957

MINNEAPOLIS, MINNESOTA

HENRY PATRICK WAGENER

Graduate of the College of Charleston (B.S., 1909) and of the Medical College of the State of South Carolina (M.D., 1913). Fellow in Ophthalmology, University of Minnesota Medical School (1917). First Lieutenant U. S. Army (M.C., 1918-1919). Fellow in Ophthalmology, Mayo Foundation (1920-1923; M.S. in Ophthalmology, University of Minnesota, 1923). Instructor in Ophthalmology, Mayo Foundation, 1924-(1927), Société Française d'Ophtalmologie (1928). Member 1933-1947; Professor, 1947-1955. Consulting Ophthalmologist, Mayo Clinic and affiliated hospitals. Retired, 1955.

Fellow of the American Academy of Ophthalmology and Otolaryngology (1926), American Ophthalmological Society (1927), Société Française d'Ophtalmologie (1928). Member of the American Medical Association, Southern Medical Association, Minnesota Medical Association, Sigma Xi.

Exhibits

The Scientific and Technical Exhibits will open at nine o'clock on Sunday morning, October 13. They will close at four o'clock Sunday afternoon for the President's Reception. From Monday through Friday they will open at 8:30 a.m. The Scientific Exhibit will close at 5:30 p.m. each day, and the Technical Exhibit at 5:00 p.m., except that they will both close on Friday, October 19, at twelve o'clock noon.

Dues

Receipt card for 1957 dues is required for registration at the Academy meeting. Those who have not paid dues for 1957 are requested to remit to W. L. Benedict, M.D., Executive Secretary-Treasurer, 15 Second Street S.W., Rochester, Minn. In case of loss, a duplicate receipt card may be obtained upon request.

Registration

General registration will begin at nine o'clock Sunday morning, October 13, in the Foyer to the Grand Ballroom on the fourth floor of the Palmer House.

The regulation badge secured at the time of registration is essential for admittance to all activities. To facilitate registration the following sections will be provided:

Advance Orders: Members who have reserved instruction course tickets register here. Advance orders are held here for collection.

Members Without Advance Orders: Please present Receipt Card for 1957 dues. Dues outstanding may be paid at this section.

(Application blanks for Fellowship in the Academy may be obtained here.)

Instructors: All persons presenting instruction courses register here to secure special badge. Instructors who are not members of the Academy may register without fee.

Nonmembers: A registration fee of $5.00 is required of all guests (see below). The following exceptions are made:

1. Candidates for Academy Fellowship whose names appear in the July-August issue of the TRANSACTIONS.
2. Residents in training presenting guest cards obtained before the meeting (see next page).
3. Guests taking part in the Scientific Program or Exhibits.

Orthoptic Technicians: All orthoptic technicians register here. Tickets for the Orthoptic Technicians Instruction Courses will be on sale here.

Guests

Physicians who are not members are welcome to attend the meeting of the Academy as guests and to participate in all the activities. All guests, however, will be required to register, and a fee of $5.00 will be charged.

In the past, a number of Fellows and registered guests of the Academy have indicated that they wish their *office nurses, technicians,* and *similar personnel* to attend parts of the Academy program or exhibits. Such individuals will be allowed to register upon presentation of a written request from a Fellow or if accompanied by a registered guest or Fellow. The guest fee of $5.00 will be required. An exception is made for all members of the American Association of Orthoptic Technicians, who may register without fee.

Residents

Men in training in accepted residencies, or those now completing a full academic year (nine months) in basic study, may register without fee upon presentation of a guest card obtained by written request of their Department Heads.

Requests from Department Heads for guest cards should be sent to W. L. Benedict, M.D., 15 Second Street S.W., Rochester, Minn., by October 1.

Instruction Course Tickets

The tickets for courses in ophthalmology and the tickets for courses in otolaryngology and maxillofacial surgery will be sold at separate desks in the Registration Headquarters. The bulletin boards behind each desk will indicate what tickets are available. Please consult these boards in making your selections. Bear in mind that individual courses are for one hour only; continuous courses run for two or more hours. Price of tickets is $2.00 per hour.

It is necessary to register and to be wearing a regulation badge in order to purchase instruction course tickets.

Ladies' Registration

The wives of members and guests are urged to register at the Ladies' Headquarters on the eighth floor of the Palmer House, Room 832. Registration will open at nine o'clock, Sunday morning, October 13, and will close at noon on Thursday, October 17.

Available Supplies

Manuals, monographs, and collected abstracts of instruction courses may be purchased at the supply counter in Registration Headquarters. Guests may place subscriptions to the bimonthly issues of the TRANSACTIONS here.

Dinner Tickets

Dinner tickets will be on sale beginning Sunday morning at nine o'clock, and it is urged that purchases be made early. Tickets for the Annual Banquet, which will be held on Monday evening, may be purchased at Registration Headquarters until two o'clock on Monday afternoon.

Tickets for the Plastic Surgeons' Dinner will be on sale until two o'clock on Tuesday afternoon; and tickets for Alumni Dinners may be purchased until two o'clock on Wednesday.

BUY YOUR DINNER TICKETS EARLY — 10 Dollars

SELECT YOUR TABLE — TEN PLATES TO A TABLE

Fine Cuisine *Entertainment*

Hear Dorothy Shay

See the Hal Loman Dance Trio

CONVENTION ACTIVITIES

PRESIDENT'S RECEPTION

Grand Ballroom
Sunday, 4:30 p.m.

President Erling W. Hansen and Mrs. Hansen invite all members and guests of the Academy to a reception on Sunday, October 13, at 4:30 p.m. in the Grand Ballroom.

XIV JACKSON MEMORIAL LECTURE

Sponsored by the Ophthalmic Publishing Co.

Dr. Michael J. Hogan, Clinical Professor of Ophthalmology in the University of California School of Medicine, Berkeley-San Francisco, and Director of the Francis I. Proctor Foundation for Research, will deliver the XIV Jackson Memorial Lecture at the scientific session of the Section on Ophthalmology, Wednesday morning, October 16. The subject of his lecture will be "Ocular Toxoplasmosis."

XIII WHERRY MEMORIAL LECTURE

Sponsored by the Wherry Memorial Fund

The XIII Wherry Memorial Lecture will be delivered at the scientific session of the Section on Otolaryngology, Wednesday afternoon, October 16, by Dr. Gordon D. Hoople, Emeritus Professor of Otolaryngology at the State University of New York College of Medicine, Syracuse. The subject of his address will be "Hello! Is This Bill Wherry?"

THE ANNUAL BANQUET

Grand Ballroom
Monday, 7:00 p.m.

The attendance at the annual banquet last year was greater than for several years past and it was attributed to the good food and good entertainment at less than night club prices.

Piano music during the dinner and a 15 piece orchestra from 9:00 to 12:00 for dancing will give the type of music the guests like best. In addition there will be two outstanding entertainment features. Hal Loman and His Playmates, a fine dance trio, will appear on the show. We will then enjoy the special privilege of having Dorothy Shay in a personal appearance with her wonderful songs. Don't miss it. There will be no speeches.

Tables may be reserved, ten places to a table, at the ticket box in the registration foyer until 2:00 p.m., Monday. Doors open at 6:30 p.m. Bar service available, dress optional.

RECONSTRUCTIVE SURGERY DINNER-MEETING

Tuesday, 6:00 p.m.

This is a special program provided by the Committee on Reconstructive Surgery.

Dinner at 6:00 in the Louis XVI Room at the Hotel Sherman. Papers and discussion will follow in separate rooms near by. The assembly rooms are well suited for these programs and adequate seating is assured. Dinner tickets will be available in the registration foyer at $7.50 until 2:00 p.m., Tuesday. There will be no advance sale of tickets.

FACULTY LUNCHEON
Private Dining Room 14

Thursday, 12:30 p.m.

President Erling W. Hansen will be host to all those presenting scientific papers, motion pictures, scientific exhibits and courses of instruction.

LADIES' PROGRAM

Wives and guests of members of the Academy are invited to participate in the special program of events planned for their pleasure and convenience by the Academy.

Beverages and cakes will be served daily from 9:00 to 11:30 a.m. and from 3:00 to 5:00 p.m. in the Ladies' Hospitality Suite, Rooms 832-834.

Information personnel will be in attendance in the Hospitality Suite to give suggestions and advice regarding restaurants, shopping, theaters, concerts, and places of interest in the city.

A Special Event—Tuesday, October 15 — Luncheon and Style Show sponsored by the Kenwood Division of the Infant Welfare Society.

ALUMNI DINNERS — 1957

The following alumni groups will hold dinners, luncheons, or cocktail parties during the Academy meeting. Most of these functions will be held on Wednesday evening, October 16, 1957. (A complete listing including time, place of function and address of the secretary for each group will appear in the Pocket Program issued at the Academy meeting.)

Brooklyn Eye & Ear Alumni Association
Dr. J. Mackenzie Brown Alumni
Buffalo Alumni
Cook County Hospital Ophthalmological and Otolaryngological Alumni
Episcopal Eye, Ear and Throat Hospital Residents Alumni
Henry Ford Hospital Alumni
Gill Memorial Eye, Ear and Throat Hospital Alumni—Annual Spring Graduate Course
Harper Hospital Alumni
Heed Ophthalmic Foundation Alumni
Illinois Eye and Ear Infirmary Alumni—Ophthalmology
Iowa Eye, Ear, Nose and Throat Alumni
Johns Hopkins Hospital Alumni—Wilmer Institute and Otolaryngology Alumni
David H. Jones Alumni
Dr. Arlington C. Krause Luncheon
Dr. John R. Lindsay Alumni
Manhattan Eye, Ear and Throat Hospital—Society of Ex-House Surgeons
Massachusetts Eye and Ear Infirmary—Ophthalmology and Otolaryngology
Mayo Clinic Alumni
Mount Sinai Hospital of New York — Otolaryngology Alumni
Newark Eye and Ear Infirmary Alumni
New Orleans E.E.N.T. Hospital—Charity Hospital Alumni
New York Eye and Ear Infirmary Alumni
New York Hospital Alumni Group
New York University, New York Post Graduate Medical School and Bellevue Hospital Alumni
Northwestern University Alumni, Postgraduates, Residents and Staff
Otolaryngologic Alumni Association of the University of Illinois and the Illinois Eye and Ear Infirmary
Walter R. Parker — Roy Bishop Canfield Alumni
Presbyterian Hospital (New York) Ear, Nose and Throat Alumni
Receiving Hospital Ophthalmic Alumni (Detroit)
University of Pennsylvania Alumni—Otolaryngology
University of Pennsylvania Post Graduate and Wills Hospital Alumni—Ophthalmology
University of Wisconsin — Eye and Ear Alumni
Washington University Alumni—Ophthalmology
Washington University Alumni—Otolaryngology

CANDIDATES--1957

The following candidates have qualified for Fellowship in the American Academy of Ophthalmology and Otolaryngology and will be voted upon at the Annual Business Meeting, Thursday, October 17, 1957. Objections to the election of a candidate must be filed with the Executive Secretary-Treasurer previous to Saturday, October 12, 1957.

CANDIDATES CERTIFICATED BY BOARDS

Ophthalmology (OP)
Otolaryngology (ALR)
Plastic Surgery (Pl S)

Adams, Leon Ashby, Medical Arts Bldg., Princeton, N. J., ALR
Alexander, Benjamin, 1538 Sherbrooke St. West, Montreal, Que., Canada, OP
Allain, Donald, 139 Lincoln St., Framingham, Mass., OP
Anderman, David Albert, 414 Miller Ave., Brooklyn 7, N. Y., OP
Anderson, Paul Drake, 1707 Main St., La Crosse, Wis., OP
Angiuoli, Domenic N., 304 Central Ave., Orange, N. J., OP
Antle, Robert C., Jones E.E.N.T. Hospital, Johnson City, Tenn., OP
Apter, Julia T., 7135 S. Jeffery Ave., Chicago 49, Ill., OP
Aronstam, Robert H., U. S. Public Health Service Hospital, 77 Warren St., Boston, Mass., OP
Arstikaitis, J. Maria, 345 Bloor St. West, Toronto, Ont., Canada, OP
Asbury, Taylor, 718 Carew Tower, Cincinnati 2, Ohio, OP

Baird, Ronald Pierce, 245 Frederick St., Kitchener, Ont., Canada, OP
Ballenberger, Louis Porter, U. S. Naval Hospital, Chelsea 50, Mass., ALR
Barnes, Charles Keith, Neil P. Anderson Bldg., Fort Worth, Texas, OP
Basek, Milos, 180 Fort Washington Ave., New York 32, N. Y., ALR
Batungbacal, Ramon T., Boston City Hospital, Boston 18, Mass., OP
Baumgartner, Wilbur Whittler, 118 N. Chestnut St., Kewanee, Ill., OP
Bedrick, Morton, 664 Farmington Ave., Hartford 5, Conn., OP
Bellet, Jerome, 538 E. 29th St., Paterson 4, N. J., OP
Benoit, Clair F., 385 River Ave., Winnipeg 13, Man., Canada, OP
Berry, A. Erwin, 4½ W. Charles St., Oelwein, Iowa, OP
Berry, Jack J., 2010 E. 102nd St., Cleveland 6, Ohio, OP
Bialik, Michael H., 14853 Michigan Ave., Dearborn, Mich., OP
Billman, Howard George, 320 G St., Marysville, Calif., ALR
Blackburn, Edward Albert, Jr., 1304 Walker Ave., Houston 2, Texas, ALR
Bobb, Arthur Alfred, Jr., 346 N. Fifth St., Reading, Pa., OP
Bode, Frederick William, Jr., 516 Oliver Bldg., Pittsburgh 22, Pa., ALR
Boruchoff, S. Arthur, 192 Bay State Rd., Boston 15, Mass., OP
Boyaner, Don, 5757 Decelles Ave., Montreal 26, Que., Canada, OP
Braunstein, Edgar Gerard, 1009 79th St., North Bergen, N. J., OP
Breakstone, Gerald Joseph, 523 W. Sixth St., Los Angeles 14, Calif., OP
Brewer, Alexander L., 2801 N. 29th Ave., Birmingham 7, Ala., OP
Brewer, Ray Larry, 6800 Long Point, Houston 24, Texas, OP
Brophy, John William, 505 Arlington Ave., Reno, Nev., ALR
Bruce, Robert Grady, 3502 Lee St., Greenville, Texas, ALR
Bryce, Michael Robert, 49 E. 96th St., New York 28, N. Y., ALR
Burnett, Arthur B., 106 N. Main St., New Castle, Ind., OP
Burns, Robert Patrick, 635 W. 165th St., New York 32, N. Y., OP
Buten, Robert E., 1001 York St., Newport, Ky., OP
Button, Richard R., 318 Newport Blvd., Newport Beach, Calif., OP
Byerly, Baxter Hayes, North Carolina Memorial Hospital, Chapel Hill, N. C., OP

Campbell, John Roy, 1342 Medical-Dental Bldg., Seattle 1, Wash., OP
Carbajal, Ulysses Mejia, 635 S. Westlake Ave., Los Angeles 57, Calif., OP
Carlisle, Joseph Robert, 400 29th St., Oakland 9, Calif., OP

Carlson, Frederick B., U. S. Naval Hospital, Newport, R. I., OP
Carney, John Lackie Patrick, 1162 Medical-Dental Bldg., Seattle 1, Wash., ALR
Castro, Amos John, Jr., 384 Post St., San Francisco 8, Calif., ALR
Chatzinoff, Albert Bernard, 2035 Lakeville Rd., New Hyde Park, L. I., N. Y., OP
Chodosh, Paul Lowell, 230 W. Jersey St., Elizabeth, N. J., ALR
Cibis, Paul Anton, 640 S. Kingshighway, St. Louis 10, Mo., OP
Clopton, James William, 213 N. Pomona Ave., Fullerton, Calif., ALR
Copps, James M., 131 S. Barstow St., Eau Claire, Wis., OP
Cordero-Moreno, Rafael, Policlinica Barquisimeto, Barquisimeto, Venezuela, OP
Covell, Lester Laurence, 358 Commonwealth Ave., Boston 15, Mass., OP
Crockett, Douglas Harman, U. S. Public Health Service Hospital, Norfolk 8, Va., OP
Croffead, George S., 149 Wentworth St., Charleston, S. C., OP
Cross, Junius Bracy, Boyle Bldg., Fifth and Main, Little Rock, Ark., OP
Cunningham, John David, 3400 Spruce St., Philadelphia 4, Pa., ALR
Curcio, Michael, 320 N. 63rd St., Philadelphia 39, Pa., OP
Cury, Dahar, Jr., 2665 Walnut St., Huntington Park, Calif., OP
Cyphers, Charles Dougal, 506 W. Faulkner, El Dorado, Ark., ALR

Davis, Matthew Dinsdale, 224 W. Washington Ave., Madison 3, Wis., OP
de la Cruz, Edgar, P. O. Box 4266, San Jose, Costa Rica, OP
Denny, Lorin Wayne, 140 E. Poplar Ave., San Mateo, Calif., OP
Doctor, Daniel W., 30 W. 59th St., New York 19, N. Y., OP
Donald, Russell A., 2014 Tulare, Fresno 21, Calif., OP
Donovan, Bernard Frank, 277 Alexander St., Rochester 7, N. Y., OP
Drumheller, George Henry, 1719 Hewitt, Everett, Wash., ALR
Duke, James R., Wilmer Institute, Johns Hopkins Hospital, Baltimore 5, Md., OP
Duncan, James A., 280 Mamaroneck Ave., White Plains, N. Y., OP
Dyer, John Allen, 200 First St. S. W., Rochester, Minn., OP

Edgar, Erwood George, 12462 Brookhurst, Garden Grove, Calif., OP
Edwards, Thomas S., 17 E. 72nd St., New York 21, N. Y. (Temporary), OP
Eisenhauer, Robert Dale, 220 Engle St., Englewood, N. J., OP
Ejercito, Napoleon Campos, 1450 Union St., Paco, Manila, Philippines, ALR
Elder, Orr Jay, 440 S. Harrison St., East Orange, N. J., OP
Erdbrink, Wayne Lang, Tripler Army Hospital, APO 438, San Francisco, Calif., OP

Fainstein, Saul Ben, 2453A Bloor St. West, Toronto 9, Ont., Canada, OP
Farrant, Floyd Howard, 22 Plymouth St., Montclair, N. J., OP
Fethke, Norbert, 54 Church St., Amsterdam, N. Y., OP
Fink, Robert John, 1921 Medical Arts Bldg., Minneapolis 2, Minn., OP
Fish, John Henry, 616 Permian Bldg., Big Spring, Texas, OP
Fletcher, Mary Critz, 906 Medical Towers, Houston 25, Texas, OP
Flom, Leonard, 70 Reef Rd., Fairfield, Conn., OP
Fogle, Richard J., 312 Seventh St., Racine, Wis., ALR
Foss, Robert Harvey, 305 E. Walnut St., Green Bay, Wis., OP
Fountain, Newland William, 400 N. Main St., Warsaw, N. Y., OP
Fox, Francis Harry, 1545 Addison Ave. East, Twin Falls, Idaho, OP
Frenkel, Henry Hans, 144 Golden Hill St., Bridgeport 3, Conn., OP
Frisch, Michael Ronald, Wadsworth General Hospital, Los Angeles 25, Calif., OP
Fusco, John A., 9210 Colima Rd., Whittier, Calif., OP

Gaddy, George Douglas, 205 Bailey Coble Bldg., Burlington, N. C., OP
Garabedian, Vahe, 108 Oak St., Binghamton, N. Y., OP
Gaulton, Gordon Charles, 27 Leinster St., St. John, N. B., Canada, ALR
Gibbins, George W., Medical Arts Bldg., Anniston, Ala., OP
Gill, John Ellis, U. S. Naval Hospital, Charleston, S. C., OP
Gill, Theodore M., 310 Medical Arts Bldg., Albert Lea, Minn., OP
Glenn, Leland Kirk, 2275 McGregor Blvd., Fort Myers, Fla., OP

Gocke, John Thomas, 403 Prunty Bldg., Clarksburg, W. Va., OP
Goss, Vernon Victor, 908 Hospital Dr., Tyler, Texas, OP
Gregg, Lester O., 510 Dollar Bank Bldg., Youngstown 3, Ohio, ALR
Grindle, Lincoln, 332 Marguerite Ave., Corona Del Mar, Calif., OP
Guertin, Paul Leon, 837 Cherrier St., Montreal, Que., Canada, ALR

Hamel, John Kenneth, 408 Westminster Ave., Newport Beach, Calif., ALR
Hansen, Alma Kelsch, 45 N. Tucson Blvd., Tucson, Ariz., OP
Harding, Robert LeGrande, 2201 N. Second St., Harrisburg, Pa., Pl S
Harrington, James Lyle, 234 Rexford Pl., Watertown, N. Y., OP
Harrison, Lloyd Bratton, Jr., 1109 Harrison Ave., Panama City, Fla., ALR
Hart, Edward Elmer, 330 W. Buffalo St., Ithaca, N. Y., OP
Hart, James Coleman, Fifth and Walnut Sts., Murray, Ky., OP
Haseltine, Charles Patrick, 2 W. Fern Ave., Redlands, Calif., OP
Hedges, Charles C., Jr., 1177 Montgomery Dr., Santa Rosa, Calif., OP
Herbert, Edna Eva, Panama, Iowa (temporary), OP
Herm, Robert James, 740 Main St., Waltham 54, Mass., OP
Hildebrand, William, 80 Delaware Rd., Kenmore 17, N. Y., ALR
Hirsch, Lee, 130 Maple St., Springfield 5, Mass., OP
Hobart, Seth Guilford, Jr., Professional Bldg., 1200 Broad St., Durham, N. C., ALR
Hobbs, Frank Imboden, 506 Church St., Lynchburg, Va., OP
Holt, Robert Glenn, 327 Chestnut St., Halstead, Kan., OP
Hootman, J. Kenneth, 633 Washington Rd., Pittsburgh 28, Pa., OP
House, William Fouts, 1136 W. Sixth St., Los Angeles 17, Calif., ALR
Howard, John C., 202 E. Liberty St., Savannah, Ga., ALR
Hyman, Barnett Morton, First Federal Savings and Loan Bldg., Beaumont, Texas, ALR

Insley, Marion C., Jr., 1117 N. Second St., Harrisburg, Pa., ALR
Irving, John Arthur, 3195 Granville St., Vancouver 9, B. C., Canada, OP

Jacks, Quentin Douglas, 736 Granville St., Vancouver 2, B. C., Canada, ALR
Jaffe, Charles Raymond, 2128 Ocean Ave., Brooklyn 29, N. Y., OP
Jimenez, Timoteo, Louisiana State University School of Medicine, New Orleans 12, La., OP
Johnston, Theodore Leigh, 204 E. Fourth Ave., Cheyenne, Wyo., OP
Julien, Paul Etienne, 794, 5e rue, ch 115, Shawinigan Falls, Que., Canada, OALR
Juska, Aldona Ann, 2422 W. Marquette Rd., Chicago 29, Ill., OP

Kapur, Yash Pal, 136 Hampstead Rd., Brislington, Bristol 4, England, ALR
Kazdan, Philip, 10515 Carnegie Ave., Cleveland 6, Ohio, OP
Kerns, Thomas Cleveland, Jr., 110 Main St., Durham, N. C., OP
King, Robert Lee, Jr., U. S. Naval Hospital, Great Lakes, Ill., ALR
King, Robert Wallace, 505 Osler Bldg., 1200 N. Walker, Oklahoma City 3, Okla., OP
Klotz, Jeremiah Alexander, Jr., 905 Wainwright Bldg., Norfolk 10, Va., OP
Koenig, Harry, Nester Block, Marquette, Mich., OP
Kohl, Darwin Louis, 119A Main St. South, Minot, N. D., OP
Kolson, Harry, Veterans Administration Hospital, 130 W. Kingsbridge Rd., Bronx 68, N. Y., ALR
Koppel, Zoltan I., 105 E. 63rd St., New York 21, N. Y., OP
Kresca, Frank J., 206 N. Randolph St., Champaign, Ill., OP

Laschever, Eleazer Frederick, Medical Arts Bldg., Princeton, N. J., OP
Leavelle, Robert Bryan, 4747 Vineland Ave., North Hollywood, Calif., OP
Leight, Harold Charles, 809 Republic Bldg., Denver 2, Colo., OP
Levine, Oscar, 1451 N. E. Bayshore Dr., Miami 32, Fla., OP
Lieurance, Richard Edward, U. S. Naval Hospital, Jacksonville 12, Fla., OP
Lilly, Milton J., Jr., 1106 Virginia St., Charleston, W. Va., OP
Lindeke, Harold Irving, 1930 Wilshire Blvd., Los Angeles 57, Calif., OP
Liva, Edward Louis, 300 Franklin Ave., Ridgewood, N. J., OP
London, Merritt Evan, 55 Union St., Red Bank, N. J., OP

Lu, Cheng-en, Students Health Service, University of Minnesota, Minneapolis 14, Minn., ALR

Lyon, James M., 2045 Jefferson St., Napa, Calif., OP

MacDonald, James Harold, 1570 Johnston Rd., White Rock, B. C., Canada, OP

Macdonald, Roderick, Jr., 1430 Tulane Ave., New Orleans 12, La., OP

Magee, George Richard, 15 E. First St., Reno, Nev., OP

Malinoski, Mitchell Valentine, Veterans Administration Hospital, Poplar Bluff, Mo., ALR

Maness, Edward Stewart, 801 Sharp Bldg., Lincoln 8, Neb., ALR

Marchand, Leopold, 32 Boulevard St. Joseph West, Montreal 14, Que., Canada, ALR

Marron, James William, Prudential Bldg., Chicago 1, Ill., OP

Mazzola, Stephen, 882 Reibold Bldg., Dayton 2, Ohio, ALR

McCarty, William Mason, 403 Fulton St., Troy, N. Y., OP

McDaniel, Donald Wiley, 308 E. Fourth St., The Dalles, Ore., OP

McFadden, Robert Lee, De Puy-Sorkness Clinic, Jamestown, N. D., ALR

McFarlane, Donald Cecil, 382 Queens Ave., London, Ont., Canada, OP

McIntire, Waldean Chester, 3610 Dodge St., Omaha, Neb., OP

McLean, Walter Copley, 104 E. Market St., Charlottesville, Va., ALR

McPherson, Alice Ruth, Massachusetts Eye & Ear Infirmary, 243 Charles St., Boston 14, Mass., OP

McReynolds, William Uriel, 1101 Maine St., Quincy, Ill., OP

McVeigh, James Franklin, 218 State Tower Bldg., Syracuse 2, N. Y., OP

Mendelson, Jack, 203 Boyd Bldg., Winnipeg, Man., Canada, OP

Merklin, Lewis, 255 S. 17th St., Philadelphia 3, Pa., ALR

Metson, Bates Francis, 14435 Hamlin St., Van Nuys, Calif., ALR

Meyers, Edward Augustine, 216 Engle St., Englewood, N. J., ALR

Michler, Raymond Robert, 426 Webber St., Napa, Calif., OP

Miller, Edwin Morton, 81 Main St., Newton, N. J., OP

Miller, Wade Hampton, 1416 Professional Bldg., Kansas City 6, Mo., OP

Moorman, John Dement, Medical Arts Bldg., Huntsville, Ala., OP

Mueller, Emma Clara, 9985 Sierra Ave., Fontana, Calif., OP

Murphy, Leo J., 102 N. Clinton St., Olean, N. Y., OP

Neely, Robert Allen, 22 N. Bell, Bellville, Texas, OP

Nelson, Bentley A., U. S. Naval Hospital, Camp Lejeune, N. C., ALR

Nelson, Robert C., 1902 Union Central Bldg., Cincinnati 2, Ohio, OP

Noguera, Julio T., Rodriguez Army Hospital, San Juan, Puerto Rico, ALR

Ostler, Howard Bruce, 20 E. Third North St., Provo, Utah, OP

Parke, David William, 69 E. Main St., Meriden, Conn., OP

Patterson, Reese W., Jr., 406 W. Church St., Knoxville, Tenn., OP

Patterson, Walter, U. S. Naval Hospital, Bethesda, Md., OP

Paul, James Mackay, 608 Republic Bldg., Denver 2, Colo., ALR

Peebles, Charles Henry, Jr., 1673 Brabham Ave., Columbia, S. C., OP

Peterson, Donald Arvid, 110 E. Main St., Madison 3, Wis., OP

Petty, Robert William, 33 E. Second South St., Provo, Utah, OP

Pfeifer, Robert H., 808 N. E. 20th Ave., Fort Lauderdale, Fla., OP

Pickens, James L., 1052 W. Walnut St., Rogers, Ark., ALR

Pickett, William Edward, 644 Madison Ave., Albany, N. Y., OP

Pinkham, Raymond Arthur, 316 Henrietta St., Kalamazoo, Mich., OP

Pistolas, Nicholas George, 2828 Connecticut Ave. N. W., Washington 8, D. C., OP

Platt, John W., 258 Genesee St., Utica 2, N. Y., ALR

Pollak, Kurt, 412 Union St. S. E., Minneapolis 14, Minn., ALR

Poore, John Chapman, 850 Middlefield Rd., Palo Alto, Calif., OP

Posner, Marvin, 371 State St., Albany 10, N. Y., OP

Prater, Bill George, 223 Professional Bldg., Springfield 4, Mo., OP

Pugh, George B., 24 Wick Ave., Youngstown 3, Ohio, OP

Purnell, James E., 872 Fifth Ave., New York 21, N. Y., OP

Quigley, John H., 313 Spring Garden Rd., Halifax, N. S., Canada, OP

Ragan, John Dennis, 220-736 Granville St., Vancouver 2, B. C., Canada, OP

Raphael, Sylvan, 1329½ A St., Hayward, Calif., OP

Rees, Donald Leslie, 303 Medical Arts Bldg., Edmonton, Alta., Canada, OP

Rex, Earl G., 420 S. Glendora, West Covina, Calif., OP

Richter, William Curtis, S. 820 McClellan St., Spokane 4, Wash., OP

Roach, George Samuel, Jr., 144 Ponce de Leon Ave. N. E., Atlanta 8, Ga., ALR

Rock, Frederick, 3500 Fifth Ave., Pittsburgh 13, Pa., OP

Rodin, Max, 8721 La Tijera Blvd., Los Angeles 45, Calif., OP

Rodriguez, Alvaro, Calle 15 No. 15-45, Apt. 302, Bogota, Colombia, OP

Rosenblatt, Monroe N., 140 Lockwood Ave., New Rochelle, N. Y., OP

Rosenthal, Morton L., 41 Eastern Pkwy., Brooklyn 38, N. Y., OP

Rowen, Gerald Eugene, Box 569, Miles City, Mont., OP

Rummel, William David, 845 Eighth St. N. E., Massillon, Ohio, OP

Samson, Clarence Lofton Martin, 1206 Pere Marquette Bldg., New Orleans 12, La., OP

Saul, Robert Warren, 520 Medical Arts Bldg., Pittsburgh 13, Pa., OP

Schaeffer, Alexander John, 6317 Wilshire Blvd., Los Angeles 48, Calif., OP

Schalmo, Edwin Henry, 1729 S. 11th St., Milwaukee 4, Wis., OP

Schane, David, 20211 Greenfield, Detroit 35, Mich., OP

Scheidt, John E., 536 W. Commonwealth, Fullerton, Calif., OP

Schiff, Frank S., 1237 E. Main St., Alhambra, Calif., OP

Schofman, Manuel A., 9526 N. E. Second Ave., Miami Shores, Fla., ALR

Schwartz, Bernard, University Hospitals, Iowa City, Iowa, OP

Seiff, Stephen S., 416 N. Bedford Dr., Beverly Hills, Calif., OP

Seltsam, Jack Harold, University of California Medical Center, Los Angeles 24, Calif., ALR

Shaner, Harold Jack, 417 E. Robinson Ave., Orlando, Fla., OP

Shannon, Charles Richard, 2701 Eye St., Sacramento 16, Calif., OP

Shannon, Gerard M., 1434 E. Huntingpark Ave., Philadelphia 24, Pa., OP

Shapiro, Edward, 142 Joralemon St., Brooklyn 1, N. Y., ALR

Shapiro, Irving, 1750 Medical Arts Bldg., Minneapolis 2, Minn., OP

Sheehy, James Luhn, 98th General Hospital, APO 34, New York, N. Y., ALR

Siegel, Morton T., 109 E. Italia St., Covina, Calif., OP

Silverstein, Arthur L., 16 Crescent Ave., Passaic, N. J., OP

Singer, Roy Richard, 35-19 Fair Lawn Ave., Fair Lawn, N. J., OP

Sivulich, Michael J., 406 Main St., Johnstown, Pa., OP

Smith, Clarence Girard, 222 Osborn Medical Bldg., Cleveland 15, Ohio, OP

Smith, Dale Compton, 231 W. 47th St., Kansas City 12, Mo., OP

Smith, Ronald Perry, 7 N. Catherine St., Plattsburgh, N. Y., OP

Snyder, Alan A., 490 Post St., San Francisco 2, Calif., OP

Solomon, Yale, 375 E. Main St., Bay Shore, N. Y., OP

Sorenson, Lionel Winton, 2999 Regent, Berkeley 5, Calif., OP

Spaeth, Philip George, 1930 Chestnut St., Philadelphia 3, Pa., OP

Spencer, Robert Walter, 312 Medical Arts Bldg., Tulsa, Okla., OP

Spizziri, Louis Joseph, 400 Park Ave., Paterson, N. J., OP

Stark, Eric James, 211 Avenue Bldg., Saskatoon, Sask., Canada, ALR

Stavola, Frances P., 123 E. 61st St., New York 21, N. Y., OP

Stein, Edward, 25622 Coolidge Highway, Huntington Woods, Mich., OP

Stenerodden, Sidney Clinton, 401 Livesley Bldg., Salem, Ore., OP

Stewart, Landis C., 108 Nat'l Bank Bldg., Adrian, Mich., OP

Stickle, Arthur Waldo, 924 Arcade Bldg., St. Louis 1, Mo., OP

Stiernberg, Douglas Davis, 411 Third Ave. North, Texas City, Texas, OP

Strause, Harold L., Jr., 244 N. Fifth St., Reading, Pa., OP

Strong, Mervyn Stuart, 203 Commonwealth Ave., Boston, Mass., ALR

Sturman, Robert Morris, 8 E. 84th St., New York 28, N. Y., OP

Stuteville, Orion Harry, 700 N. Michigan Ave., Chicago 11, Ill., Pl S

Sweeney, John Thomas, 1801 Carnegie Ave., Cleveland 15, Ohio, OP

Switzer, Fred D., McAlester Clinic, McAlester, Okla., OP

Talbot, Thomas Edward, 640 Medical Arts Bldg., Portland 5, Ore., OP
Tani, George Tadashi, 1210 Lowry Medical Arts Bldg., St. Paul 2, Minn., OP
Taub, Robert Golde, 6 N. Michigan Ave., Chicago 2, Ill., OP
Tenney, Alonzo Cass, Sheppard AFB Hospital, Wichita Falls, Texas, OP
Terner, Irwin Stanley, 1200 Chartiers Ave., McKees Rocks, Pa., OP
Thorlakson, Neil Frederick, 605 Cobb Bldg., Seattle 1, Wash., OP
Tillman, Joseph M., Jr., 434 W. Lindley Ave., Philadelphia 20, Pa., OP
Tippins, H. Keener, 1750 N. Palafox St., Pensacola, Fla., ALR
Torok, Nicholas, 55 E. Washington St., Chicago 2, Ill., ALR
Trapp, Claude Wilkes, Jr., 183 N. Upper St., Lexington, Ky., OP
Tredici, Thomas J., 3310th USAF Hospital, Scott AFB, Ill., OP
Tucker, Leonard Charles, 10300 Carnegie Ave., Cleveland 6, Ohio, OP

Vaccaro, Eugene Albert, 1085 Madison Ave., Memphis 3, Tenn., OP
Vallotton, William W., U. S. Naval Hospital, Beaufort, S. C., OP

Vaughn, Arthur Raymond, Jr., 512 W. Erie Ave., Philadelphia 40, Pa., OP
Villadolid, Victor F., 123 E. 61st St., New York 21, N. Y., OP
Volk, David, 2460 Fairmount Blvd., Cleveland 6, Ohio, OP

Weaver, Richard Grey, Bowman Gray School of Medicine, Winston-Salem, N. C., OP
Webb, Edward F., 30 N. Michigan Ave., Chicago 2, Ill., OP
Webb, Paul Benedict, Jr., 308 N. Sixth St., St. Louis 1, Mo., OP
Weekley, Robert Dean, 5500 Ridge Rd., Cleveland (Parma) 29, Ohio, OP
Weiner, Robert L., 709 Republic Bldg., Denver 2, Colo., OP
Wenger, Alvin Paul, 1100 N. Charles St., Baltimore 1, Md., ALR
Weyand, George Miller, 2010 17th St., Bakersfield, Calif., OP
Wheatly, William K., 324 N. Duke St., Lancaster, Pa., OP
Wickliffe, Robert C. M., 501 American Nat'l Bank, Kalamazoo, Mich., OP
Wikler, Irving, U. S. Army Hospital, APO 108, New York, N. Y., OP
Wilkes, James Wallace, Jr., Box 627, Columbia, Tenn., OP
Wilkins, Paul C., 1100th USAF Hospital, Bolling AFB 25, D. C., OP
Williams, Fred C., U. S. Army Hospital, Fort Ord, Calif., OP
Wixted, Julia Lundstrom, 314 Lincoln Way East, Mishawaka, Ind., OP
Wright, Harvey Darwin, 247 E. State St., Columbus 15, Ohio, OP
Wudka, Enrique, Rio de la Plata 56-MB, Mexico, D. F., Mexico, OP

Yoe, Lionel Meredith, 1509 Fourth Ave., Columbus, Ga., OP

The following candidates have qualified for Fellowship in the Academy except in some single detail, such as certification of the signatures of sponsors. The deficiencies are expected to be made up before the Annual Business Meeting.

Ahmad, Syed Sayeeduddin, Pakistan Naval Hospital, Karachi, Pakistan, OP
Bisi, Ricardo Humberto, 1225 Park Ave., New York 28, N. Y., ALR
Diab, Alfred Edward, American University of Beirut Hospital, Beirut, Lebanon, OALR
McNicholas, Patrick John, 288 Duckworth St., St. John's, Nfld., Canada, OP
Nalle, Ernest, Jr., 1312 Main St. Lubbock, Texas, ALR
Sverdlick Jose, B. Mitre 1427, Buenos Aires, Argentina, OP
Zakhary, George S., 80 Gamhoria St., Cairo, Egypt, ALR

PROGRAM IN BRIEF

1957 Meeting

Palmer House — Chicago

SATURDAY, OCTOBER 12, 1957

9:00 a.m.—Council Meeting — Private Dining Room 4

SUNDAY, OCTOBER 13, 1957

9:00 a.m.—Registration — Foyer to Grand Ballroom

9:00 a.m.—Ladies' Registration—Room 832

9:00 a.m.—Official Opening of Exhibits: Scientific—Private Dining Rooms 15, 16, 17; Club Foyer
Technical—Exhibition Hall and Red Lacquer Room

10:00 a.m.—Teachers' Section: Ophthalmology—Grand Ballroom

10:00 a.m.—Teachers' Section: Otolaryngology—Crystal Room

12:30 p.m.—Home Study Courses Faculty Luncheon—Private Dining Room 9

4:30 p.m. — President's Reception — Grand Ballroom

8:00 p.m.—Special Scientific Program: Otosclerosis Study Group of the Committee on Conservation of Hearing—Grand Ballroom

8:00 p.m.—Special Scientific Program: American Orthoptic Council and American Association of Orthoptic Technicians—Williford Room, Conrad Hilton Hotel

MONDAY, OCTOBER 14, 1957

9:00 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

9:30 a.m.—Joint Scientific Session—Grand Ballroom

10:15 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

11:30 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

7:00 p.m.—Annual Banquet — Grand Ballroom

TUESDAY, OCTOBER 15, 1957

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

9:00 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

5:30 p.m.—Dinner Meeting of International Association of Ophthalmological and Otolaryngological Secretaries—Private Dining Room 18

6:00 p.m.—Subscription Dinner, Plastic Surgeons—Louis XVI Room, Sherman Hotel

8:00 p.m.—Special Scientific Program: Committee on Plastic Surgery, Ophthalmology—George Bernard Shaw Room, Sherman Hotel

8:00 p.m.—Special Scientific Program: Committee on Plastic Surgery, Otolaryngology—Crystal Room, Sherman Hotel

WEDNESDAY, OCTOBER 16, 1957

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

12:45 p.m.—Council Meeting Luncheon—Private Dining Room 5

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p..m—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

6:30 p.m.—Alumni Dinners

THURSDAY, OCTOBER 17, 1957

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

12:45 p.m.—Faculty Luncheon—Private Dining Room 14

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor

3:15 p.m.—EYE Instruction Courses—Seventh Floor

4:30 p.m.—EYE Instruction Courses—Seventh Floor

5:30 p.m.—Business Meeting—Private Dining Room 18

FRIDAY, OCTOBER 18, 1957

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—American Society of Ophthalmologic and Otolaryngologic Allergy—Crystal Room

SCIENTIFIC SECTIONS

JOINT SESSION

Monday, October 14, 1957

9:30 a.m.

GRAND BALLROOM

Presiding Officer:

ERLING W. HANSEN, M.D.
President

Secretary:

KENNETH L. ROPER, M.D.

Call to Order.....The President
Announcements
Introduction of the Guest of Honor
Henry P. Wagener, M.D.
Rochester, Minnesota
Address by the President
Looking Backward and Forward
Address by the Guest of Honor
"Spasm" and Organic Arterial Disease
Presentation of Honor Awards

RECIPIENTS OF HONOR AWARDS

Hermann M. Burian
Iowa City, Iowa
F. Phinizy Calhoun, Jr.
Atlanta
Paul Austin Chandler
Boston
Leonard Christensen
Portland, Oregon
John J. Conley
New York
Edmond L. Cooper
Detroit
Wilfred E. Fry
Philadelphia
Aram Glorig
Los Angeles
Jerome A. Hilger
St. Paul, Minnesota
Fritz Jardon
Detroit
Harold H. Joy
Syracuse, New York
Joseph I. Kemler
Baltimore
John E. L. Keyes
Cleveland
Bertha Klien
Chicago
Heinrich G. Kobrak
Clarkston, Michigan
William A. Mann
Chicago
James W. McLaurin
Baton Rouge, Louisiana
Samuel J. Pearlman
Chicago
Dohrmann K. Pischel
San Francisco
Abraham Schlossman
New York
G. Edward Tremble
Montreal, Que., Canada
Joseph A. C. Wadsworth
New York

SYMPOSIUM:
VIRUSES AND VIRUS DISEASES

The Nature of Viruses

Jerome T. Syverton, M.D.

Professor of Bacteriology and Immunology
University of Minnesota Medical School and University of Minnesota Graduate School
Minneapolis, Minnesota

BY INVITATION

Viral Infections of the Upper Respiratory Tract

Edwin H. Lennette, M.D.

Chief, Viral and Rickettsial Disease Laboratory
California Department of Public Health
Berkeley, California

BY INVITATION

Viral Infections of the Eye and Adnexa

Phillips Thygeson, M.D.
San Francisco, California

AUTHORS OF PAPERS

All slides or films must be in the hands of the projection operator before the opening of each session.

Please be prepared to submit papers to the recorder immediately following presentation.

SECTION ON OTOLARYNGOLOGY

Monday, October 14, 1957

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
LOUIS H. CLERF, M.D.
Vice-President

Secretary:
EUGENE L. DERLACKI, M.D.

COGAN'S SYNDROME: CASE REPORT AND A REVIEW OF ETIOLOGIC CONCEPTS

Francis B. Quinn, Jr., M.D.
Los Angeles
BY INVITATION
and
Harold F. Falls, M.D.
Ann Arbor, Michigan

Discusser:

Edward W. D. Norton, M.D.
New York

A case of interstitial keratitis with vestibuloauditory disturbances occurring in a 60-year-old white woman is presented. The published reports of other similar cases are reviewed, beginning with the first recorded instance in 1934. The authors suggest that this symptom complex may be more closely related to an individual's inherited pattern of reaction to stress than to any one specific type of physiologic insult.

2:30 p.m.

CONTROLLED PASSIVE RESPIRATION UNDER GENERAL ANESTHESIA FOR PERORAL ENDOSCOPY: WITH A PROPOSED EXTENSION OF THE JACKSON-HUBER NOMENCLATURE OF THE BRONCHOPULMONARY SEGMENTS
(Includes Motion Picture)

Ira A. Polisar, M.D.
Charles R. Weeth, M.D.
and
Gert B. Bienias, M.D.
BY INVITATION
New York

Discussers:

E. Stewart Owre, M.D.
New York
BY INVITATION
J. Maxwell Chamberlain, M.D.
New York
BY INVITATION

This film presents a method for the safe and practical use of a short-acting intravenous barbiturate, along with an ultra-short-acting muscle paralysant (succinylcholine), and the utilization of a mechanical thoraco-abdominal respirator, for peroral endoscopy.

As a result of the marked relaxation and the adequate ventilation acquired with this method it becomes possible to visualize, both directly and with standard optical bronchoscopes, peripheral branches of the bronchial tree not included in the Jackson-Huber nomenclature of bronchopulmonary segments. This paper deals with a proposed extension of this nomenclature to include quaternary bronchi.

3:00 p.m.

SYMPOSIUM: THE SIGNIFICANCE OF OCCUPATIONAL HEARING LOSS TO THE OTOLARYNGOLOGIST
(Sponsored by the Subcommittee on Noise in Industry of the Committee on the Conservation of Hearing)

Moderator:

C. Stewart Nash, M.D.
Rochester, New York
Hallowell Davis, M.D.
St. Louis

Meyer S. Fox, M.D.
Milwaukee
Aram Glorig, M.D.
Los Angeles
Gordon D. Hoople, M.D.
Syracuse, New York

The incidence of occupational hearing loss is becoming increasingly important. As a result, there is a great demand for the services of the otolaryngologist. Recent medicolegal experiences have revealed that many otolaryngologists are indifferent, uninformed, and/or misinformed regarding the various aspects of occupational hearing loss, particularly noise-induced hearing loss.

The otolaryngologist can no longer afford to ignore this problem. He may be confronted with cases of this kind in his daily practice at any time, and even though he may be unaware of it, his decisions may set patterns that will influence the entire picture of industrial hearing conservation programs in his state.

Terminology, medicolegal significance, medical aspects, and the results of laboratory and field studies will be discussed.

4:00 p.m.

SURGICAL RECONSTRUCTION OF THE TRACHEA AND BRONCHI (A Motion Picture)

Osler A. Abbott, M.D.
Emory University, Georgia
BY INVITATION

This motion picture outlines the indications for tracheobronchial reconstruction and then details the methods available. These methods include plastic types of suturing, dermal grafts, and direct end-to-end anastamoses. The methods are illustrated by four case presentations. The first shows the use of a Gebauer-type dermal graft to reconstruct the right mainstem bronchus in a child. The change produced by this procedure is illustrated by cinefluoroscopic studies over a two-year period.

The second case illustrates the application of a massive dermal-type graft to repair the defect caused by resection of a large portion of the lateral wall of the trachea, the carina, and the medial wall of the left mainstem bronchus as part of a radical right pneumonectomy for carcinoma in the area.

The third case represents excision of the inner lining of the entire trachea for diffuse papillomatosis.

The final presentation is that of resection of a large portion of the cervical trachea for a cylindroma, with reconstruction.

4:30 p.m.

BLEEDING FOLLOWING TONSIL AND ADENOID OPERATIONS

Donald F. Proctor, M.D.
Carleton C. Douglass, M.D.
Baltimore

Discusser:
G. O'Neil Proud, M.D.
Kansas City, Kansas

One thousand six hundred and thirty-two consecutive tonsil and adenoid operations have been analyzed for the incidence of postoperative bleeding. These operations were performed by two otolaryngologists over a period of sixteen years. Both surgeons use the dissection technique for tonsillectomy and regular surgical suturing for hemostasis, without resorting to so-called hemostatic agents or forbidding the postoperative use of aspirin for relief of pain.

One surgeon had an incidence of 0.68 per cent significant bleeding, the other 1.5 per cent. The over-all incidence for the group is 1.0 per cent.

Significant bleeding has been defined for the purposes of this study as that bleeding necessitating any special care for its control. Severe bleeding is defined as that requiring either blood transfusion or resuturing. One of the authors had an incidence of 0.19 per cent severe bleeding, the other 0.66 per cent; an over-all incidence of severe bleeding of 0.36 per cent.

To our knowledge no study attributing a low incidence of postoperative bleeding to the omission of aspirin and the employment of hemostatic drugs has reported a lower incidence in a significant number of operations.

SECTION ON OPHTHALMOLOGY

Tuesday, October 15, 1957

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
ERLING W. HANSEN, M.D.
President

Secretary:
KENNETH L. ROPER, M.D.

TERATOMA OF THE ORBIT (A Clinicopathologic Case Report)

Louis J. Girard, M.D.
and
Edmund M. Fountain, M.D.
Conrad D. Moore, M.D.
John R. Thomas, M.D.
BY INVITATION
Houston, Texas

Teratomas are congenital tumors which are classified embryologically as containing all three germinal layers. Such tumors are rare in the orbit and are usually malignant.

A case of teratoma of the orbit which was discovered at birth is presented. The tumor was removed through a modified Kroenlein incision and had to be dissected from the optic nerve. The case has been followed for one year, and apparently the patient has useful vision in the affected eye.

The presentation will include preoperative photographs demonstrating the marked proptosis of the left eye, photographs of roentgenograms, and photomicrographs of the pathologic examination.

9:10 a.m.

SYMPOSIUM: DIAGNOSIS AND MANAGEMENT OF INTRAOCULAR MELANOMAS

Edwin B. Dunphy, M.D., Moderator
Boston

Arnold W. Forrest, M.D.
White Plains, New York

Irving H. Leopold, M.D.
Philadelphia

Algernon B. Reese, M.D.
New York

Lorenz E. Zimmerman, M.D.
Washington, D. C.
BY INVITATION

Presiding Officer:
DAVID O. HARRINGTON, M.D.
Vice-President

11:00 a.m.

GRANULOMATOUS UVEITIS: AN ETIOLOGIC SURVEY OF 100 CASES

Theodore F. Schlaegel, Jr., M.D.
Indianapolis

Discusser:
Frank W. Newell, M.D.
Chicago

Only 18 per cent of 100 cases of granulomatous uveitis involved the anterior segment alone. Investigations of causation included skin tests with tuberculin, toxoplasmin, histoplasmin, and brucellergin; sedimentation rate, blood counts and the Sabin-Feldman methylene blue dye test; serum uric acid, serum calcium, serum protein, and compliment fixation for leptospirosis. The isoniazid therapeutic test for tuberculosis and the pencillin test for syphilis were found to be of value. Not a single response was obtained to Daraprim.

11:30 a.m.

DACRYOCYSTORHINOSTOMY (A Motion Picture)

Guillermo Pico, M.D.
Santurce, Puerto Rico

This motion picture illustrates in color a technique of external dacryocystorhinostomy which has been found simple, safe and uncomplicated. The almost complete absence of bleeding is one of its most desirable features.

11:40 a.m.

RETRACTION OF SCLERAL WOUND EDGES AS A FISTULIZING PROCEDURE FOR GLAUCOMA

Harold G. Scheie, M.D.
Philadelphia

Discusser:

Joseph S. Haas, M.D.
Chicago

Shortly after instituting use of the Hildreth cautery to prevent scleral bleeding while making scleral incisions for peripheral iridectomies, a significant increase in the incidence of filtering cicatrices was noted. Cautery was applied to the sclera over the site of the incision before applying the knife and to any bleeding points that occurred during or after making the incision. When the wound was completely or even partially made, application of the cautery caused the lips to gape. It was concluded that the filtering cicatrices were probably due to fistulas caused by the retracted wound edges. Previous work demonstrating marked scleral shrinkage in retinal detachment upon application of a cautery offered logical explanation for the gaping of the wound. A technique was developed, therefore, to produce a fistula by superficial application of a Hildreth cautery to the sclera adjacent to the lips of the wound just after completion of the incision. The results have been extremely gratifying. Filtration has occurred in a high percentage of cases with a minimum of complications. Illustrative motion pictures will be shown.

12:10 p.m.

LIGHT-COAGULATION OF RETINAL LESIONS
(A Motion Picture)

Prof. Dr. Meyer-Schwickerath
Bonn, West Germany
BY INVITATION

Commentary:

Derrick Vail, M.D.
Chicago

SECTION ON OTOLARYNGOLOGY

Tuesday, October 15, 1957

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
O. E. Van Alyea, M.D.
Vice-President

Secretary:
Eugene L. Derlacki, M.D.

THE DEFINITIVE SURGICAL TREATMENT OF NASAL POLYPS

Kinsey M. Simonton, M.D.
Rochester, Minnesota

Discussers:

Francis L. Lederer, M.D.
Chicago

Kenneth L. Craft, M.D.
Indianapolis

Nasal polyps result from allergy, infection, or a combination of these causes. Infection, present in most cases of polyposis of long standing, causes irreversible pathologic changes in the polypoid mucosa.

Definitive surgical treatment of nasal polyposis is defined as the comprehensive removal of polyps and potential polyp-forming mucosa from both the nose and the paranasal sinuses with provision for face drainage of products of infection from the sinuses.

Review of clinical cases shows a much higher incidence of long-term relief following comprehensive surgical intervention than following intranasal polypectomy without intervention in the sinuses. Comprehensive surgical intervention at the initial operation favors preservation of functioning nasal mucosa as well as long-term or permanent relief from polyposis.

2:30 p.m.

SURGICAL PATHOLOGY OF THE MIDDLE EAR IN "3-D"

J. Brown Farrior, M.D.
Tampa, Florida

The surgical pathology of the middle ear is presented in stereo-kodachrome

slides, with comments on the surgical management of pathologic changes and its limitations. Slides have been selected from individual cases to illustrate the development of pathologic conditions of the middle ear.

Central perforations are shown with their closure by myringoplasty. A series of cases illustrate the pathologic ramifications of cholesteatoma and their surgical correction by ossiculectomy, and the various types of typmanoplasty.

The surgical pathology of the stapedial footplate is shown, with a series of slides illustrating the anatomic variations in the position of the stapes, the clinical types of otosclerosis, and the anatomic positions of otosclerosis. Some of the footplates are classed as "favorable," and in them stapes mobilization is indicated. In the "unfavorable" footplates with extensive or vascular otosclerosis, the fenestration operation is indicated.

2:50 p.m.

ALLERGIC HEADACHES

Raymond L. Hilsinger, M.D.
Cincinnati

Discussers:

Lawrence R. Boies, M.D.
Minneapolis

Robert E. Ryan, M.D.
St. Louis

The debatable role of allergy in the causation of certain headache syndromes has been the subject of argument, pro and con, since Vaughn's original article in 1927. Since Vaughn, many other authors in this country, including Rowe, Eyermann, Rinkel, Hansel, Unger, have repeatedly emphasized the role of allergy as the origin of headaches, and have demonstrated the cause and effect relationship of specific foods and inhalants in the production of head pain.

The purpose of this paper is to try to bring to your attention as otolaryngologists, the importance of allergy in the causation of head pain.

Controversial points in this subject have been (1) the results of allergic management of headaches have been poor in the past; (2) the allergy, whether it be inhalant or food, has not been investigated fully; (3) skin tests have been used as diagnostic solely; (4) the dynamic action and nature of food allergy have not been evaluated, being too often treated as static phenomena.

The symptomatology of each type of allergic headache differs from that of other types due to the location of the shock organ, this being in the nose, brain, or cranial blood vessels, or any combination of these.

The factor of fatigue and its interpretation will be discussed and amplified. The etiology, symptomatology, prognosis, diagnosis and treatment of allergic headaches will be discussed in detail.

3:20 p.m.

MUSCULOPLASTY: A NEW OPERATION FOR SUPPURATIVE MIDDLE EAR DEAFNESS

J. H. Thomas Rambo, M.D.
New York

Discusser:

Julius Lempert, M.D.
New York

The surgical technique and the results of a new operation to eradicate infection and to restore practical hearing in deafness caused by chronic otitis media will be presented. This operation is designed to be used as a standard procedure in those cases in which destruction of the conductive mechanism has created a hearing problem.

The operation is a one-stage surgical procedure consisting of three standardized steps: (1) the elimination of diseased tissue utilizing the radical mastoidectomy, (2) the plastic technique for rebuilding a permanent middle-ear air space utilizing the temporal muscle, and (3) the re-establishment of a new conductive mechanism utilizing the fenestration principle.

Brief individual case histories will be presented.

3:50 p.m.

SUBTOTAL RESECTION OF THE SUPERIOR MAXILLA
(A Motion Picture)

Edwin W. Cocke, Jr., M.D.
Memphis

This silent motion picture, narrated by the author, illustrates a technique for

subtotal resection of the superior maxilla and adjacent structures. The advantageous positioning of Gigli saws to excise a segment of the upper jaw en bloc without fragmenting the specimen is demonstrated. This technique is also shown combined with the standard upper jaw technique to remove the entire upper jaw and orbital contents.

The advantages of this operation are several. The specimen may be removed in one bloc without fragmentation. The extent of the disease in such a specimen is frequently less difficult to evaluate than when the specimen is fragmented. The loss of blood is minimized. The procedure is less traumatic than the standard procedure. The operating time is shortened, and the procedure can be performed with standard operating room equipment and without special instruments.

Every tumor of the upper jaw does not lend itself to removal by this technique. The development of this method was an attempt on our part to refine a procedure that in the past had appeared quite traumatic and associated with considerable blood loss.

4:10 p.m.

CONTROLLED HEALING OF MASTOID AND FENESTRATION CAVITIES

Fred R. Guilford, M.D.
William K. Wright, M.D.
W. Leonard Draper, M.D.
Houston

Discussers:

Theodore E. Walsh, M.D.
St. Louis

George E. Shambaugh, Jr., M.D.
Chicago

A discussion of obliterative techniques used to ensure small fenestration and mastoid cavities, allowing for more rapid and controlled healing of the cavity. Emphasis is placed on obtaining a small cavity completely lined with squamous epithelium. The bowl of the fenestration cavity is kept small by filling with diced cartilage cells leading to the tip and sinodural angle. The potential cavity following mastoidectomy is made smaller, when necessary, by obliteration of the dependent tip area in well pneumatized mastoids by removing the mastoid tip and swinging a pedicle of soft tissue into the defect from the postauricular subcutaneous tissue.

Complete healing of the resultant cavity is effected in 90 per cent of the cavities within five weeks after operation, thus avoiding a long course of postoperative care and recurrent suppuration.

SECTION ON OPHTHALMOLOGY

Wednesday, October 16, 1957

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
ERLING W. HANSEN, M.D.
President

Secretary:
KENNETH L. ROPER, M.D.

MULTIPLE CYSTS OF THE IRIS AND CILIARY BODY (A Clinicopathologic Case Report)

Torrence A. Makley, Jr., M.D.
Columbus, Ohio

A 33-year-old white woman consulted her ophthalmologist because of blurred vision in her right eye of two days' duration. Although her visual acuity was 20/20 in each eye, the right eye was removed because of a pigmented mass posterior to the iris in the 6 to 9 quadrant. This was done after she had been seen by several consulting opthalmologists. Histologic examination revealed a large cyst of the iris epithelium and multiple cysts of the ciliary body.

9:10 a.m.

OCULAR TOXOPLASMOSIS (XIV Jackson Memorial Lecture)

Michael J. Hogan, M.D.
San Francisco

9:55 a.m.

SCLERAL CHANGES IN PATHOLOGICAL MYOPIA

Brian J. Curtin, M.D.
and
C. C. Teng, M.D.
BY INVITATION
New York

Discusser:

Albert D. Ruedemann, Jr., M.D.
Detroit

This paper is divided into five parts.

The present definition of pathologic myopia is briefly discussed along with the fact that the primary role of the sclera in the pathogenesis of the disease is generally accepted, although positive evidence has not been forthcoming.

The materials used in the study consisted of 12 globes. Each of these globes had been examined by a recognized pathologist, who had made a diagnosis of myopia. The sources were the Armed Forces Institute of Pathology, The Eye Institute at New York, the Eye Bank Laboratory also at New York. The criteria for the diagnosis of myopia is presented.

The methods of conducting the study are discussed. Briefly, the techniques of specimen imbedding, sectioning, staining and mounting are mentioned. The various stains used in the study are enumerated (hematoxylin and eosin, Van Gieson, Verhoeff, Orcein and periodic acid-fuchsin stains). The method of examination is also mentioned.

The results as they pertain to the sclera are presented. General changes (i.e., posterior thinning), as well as specific changes in the scleral fiber bundle, architecture, and individual fiber bundles are discussed in detail, as these constitute the essential consistent alteration in the disease process. (These changes have been corroborated in many additional myopic globes.) Collagen changes and elastic-tissue changes in the sclera are also presented as revealed by the Van Gieson and Verhoeff stains.

In conclusion, the sclera's dominant role in the pathogenesis of the disease is stressed in the brief comparative study of the myopic sclera, normally and in hydrophthalmos.

10:25 a.m.

SURGICAL TREATMENT OF HIGH MYOPIA: COMBINED LAMELLAR SCLERAL RESECTION WITH SCLERAL RE-ENFORCEMENT USING DONOR EYE
(A Motion Picture)

William E. Borley, M.D.
and
Alan A. Snyder, M.D.
BY INVITATION
San Francisco

Discusser:

Daniel Snydacker, M.D.
Chicago

This film in color demonstrates the surgical technique used to insert a strip of donor sclera in a vertical position around the eye to reinforce the macular area and prevent myopic degenerative changes. It is done after a preliminary lamellar scleral resection to shorten the eye. Nonpenetrating diathermy is used around the scleral resection as a prophylactic measure to prevent retinal detachment. The strip is placed under the insertion of the oblique muscles and against the temporal side of the optic nerve over the macula. It is sutured above and below, nasal to the insertions of the vertical rectus muscles. The normal muscular tonus of the obliques assists in holding the strip in position.

The insertion of the donor scleral strip represents an evolution from scleral resection, tissue implants, strips of fascia lata, and tendons used previously to treat these difficult cases of high myopia. This procedure has been used successfully as a permanent shortening of the eye. Average reduction of 7.2 diopters is accomplished. The myopic degeneration changes are halted, and there is usually a visual improvement.

11:10 a.m.

THE REQUISITES FOR POSTOPERATIVE THIRD-DEGREE FUSION

Raynold N. Berke, M.D.
Hackensack, New Jersey

Discusser:

Frank D. Costenbader, M.D.
Washington, D. C.

A clinical survey of 256 cases of squint showed that the prognosis for a functional cure in constant squint was always poor when the squint began at birth, when the squint was of long duration, when the vision in the amblyopic eye was 20/50 or worse, or when a residual deviation of over 10 prism diopters persisted.

For intermittent squint the prognosis was always good when the vision was good in each eye and the deviation was fully, or almost fully, corrected.

11:40 a.m.

PLASTIC LENSES IN THE ANTERIOR CHAMBER
(A Motion Picture)

Olga Ferrer, M.D.
Havana, Cuba
BY INVITATION

11:50 a.m.

THE PATHOLOGY OF THE TRABECULAR MESHWORK IN OPEN ANGLE GLAUCOMA

Milton Flocks, M.D.
San Francisco

Discussers:
Herbert M. Katzin, M.D.
New York
Georgiana Dvorak Theobald, M.D.
Oak Park, Illinois

It is now known that primary open angle glaucoma is associated with an increased resistance to aqueous outflow, but the exact site of the increased resistance is still in dispute. One theory is that the trabecular meshwork is the area producing the obstruction.

Pathologic changes in the trabecula in open angle glaucoma have been described by Teng, Katzin and Paton, Theobald and her colleagues, Francois, and others. However, only a small number of eyes with open angle glaucoma in its early stages have been described, for it is difficult to obtain specimens before the disease has progressed.

It has recently been pointed out that the anatomy of the meshwork is incompletely visualized in ordinary pathologic studies because the meridional sections which are made allow only an unsatisfactory view of the meshwork. Transverse and, particularly, tangential sections of the meshwork are necessary to appreciate its anatomy fully.

Believing that such sections are equally essential for study of pathologic changes of the trabecula, I have studied in serial tangential section 16 eyes with primary open angle glaucoma. Most of the specimens were obtained from the Armed Forces Institute of Pathology, which cooperated in the study by forwarding to me unused wet tissue from eyes with open angle glaucoma.

Marked pathologic changes are noted in the trabecular meshwork. In many instances the degenerative changes are much more striking in tangential sections than in meridional sections. Degeneration is most marked along the inner wall of Schlemm's canal. There is an increase in deposition of pigment, which has a characteristic distribution. A comparison of these pathologic changes with those noted in the trabecular meshwork of eyes with secondary glaucoma with open angles leads to a new conception of the pathogenesis of primary open angle glaucoma. Consideration of this new concept suggests the possibility of slight changes in the clinical management of early open angle glaucoma.

SECTION ON OTOLARYNGOLOGY

Wednesday, October 16, 1957

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
LOUIS H. CLERF, M.D.
Vice-President

Secretary:
EUGENE L. DERLACKI, M.D.

PRESENTATION OF NEW INSTRUMENTS

2:30 p.m.

TEMPOROMANDIBULAR MENISCECTOMY BY THE ENDAURAL APPROACH (A Motion Picture)

Joseph R. Rongetti, M.D.
New York

The operation "Meniscectomy" is of decided benefit in certain types of temporomandibular joint derangement. It is our impression that the procedure would be used more frequently if scarring were not a factor and if the joint could be approached without danger to the anterior auricular vessels, the parotid gland, or the facial nerve. This is a visual presentation of a method of approach which completely avoids structures mentioned and which leaves almost no visible incisional scarring.

2:50 p.m.

HELLO! IS THIS BILL WHERRY? (XIII Wherry Memorial Lecture)

Gordon D. Hoople, M.D.
Syracuse, New York

3:35 p.m.

SYMPOSIUM: DEAFNESS IN CHILDREN—KNOWLEDGE AND PRACTICE

(Sponsored by the Subcommittee on the Conservation of Hearing in Children of the Committee on the Conservation of Hearing)

Moderator:
Raymond E. Jordan, M.D.
Pittsburgh

This symposium is a presentation by the Subcommittee on Conservation of Hearing in Children. The members of the committee will cover some of the aspects of deafness in children from the standpoint of present knowledge and practice.

Evaluation of Hearing in Preschool Children

John E. Bordley, M.D.
Baltimore

Problems of Testing and Managing Children with Communication Difficulties

Hollie E. McHugh, M.D.
Montreal, Que., Canada

Medical and Surgical Aspects of the Hard of Hearing Child

Victor Goodhill, M.D.
Los Angeles

Nonmedical Care of Children with Hearing Impairment

Richard Silverman, Ph.D.
St. Louis
BY INVITATION

Summary

Raymond E. Jordan, M.D.

4:35 p.m.

SUPRAGLOTTIC SUBTOTAL LARYNGECTOMY AND RADICAL NECK DISSECTION: ONE-STAGE OPERATION FOR CARCINOMA OF THE EPIGLOTTIS (A Motion Picture)

Joseph H. Ogura, M.D.
St. Louis

In certain selected instances of carcinoma of the epiglottis, supraglottic laryngectomy and radical neck dissection can be performed as a one-stage operation with preservation of the cordal function of the larynx. This en bloc procedure and repair of the laryngopharynx is made possible by use of a muscle rotation flap and skin graft.

Pathologic examination of specimens of epiglottic carcinoma revealed by total laryngectomy and radical neck dissection have revealed that in some instances there was a wide margin of safety between tumor edge and the level of the true vocal cords. Likewise, specimens of tissue removed by supraglottic subtotal laryngectomy and neck dissection show an adequate margin of safety. Several years have elapsed since the first cases were operated upon, and the results have been gratifying.

SECTION ON OPHTHALMOLOGY

Thursday, October 17, 1957

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
DAVID O. HARRINGTON, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

EOSINOPHILIC GRANULOMA OF BONE
(A Clinicopathologic Case Report)

Bradley R. Straatsma, M.D.
New York
BY INVITATION

A 2-year-old white male child experienced painless, progressive swelling about the left eye. Examination disclosed left exophthalmos and a fixed, bony mass that replaced the lateral orbital margin. Roentgenograms of the skull showed gross deformity of the left orbit with almost complete loss of the lateral orbital wall. Two operations were performed, and the patient received a therapeutic trial of steroid therapy. At operation, soft, friable gray-red tissue was encountered. Microscopically, this tissue was characteristic of eosinophilic granuloma.

9:10 a.m.

PRESENTATION OF NEW INSTRUMENTS

9:20 a.m.

LATERAL ORBITOTOMY FOR RETROBULBAR TUMOR
(A Motion Picture)

Brittain F. Payne, M.D.
New York
John T. Simonton, M.D.
Rye, New York

According to the method of Raynold N. Berke, an incision is made from the outer canthus horizontally toward the ear for a distance of about 4 cm.

The edges of the split external canthal ligament and the tarsal-orbital fascia are shelled from the lateral orbital wall.

Two cuts are made with the Stryker saw, forming a bone flap which is turned temporally.

Following orbital exploration and excision of the tumor, the bone flap swings back into its normal position and the overlying tissues are closed in layers.

Intermarginal sutures are inserted and a pressure dressing is applied.

9:30 a.m.

SYMPOSIUM: SCLERAL RESECTION PROCEDURES

Dohrmann K. Pischel, M.D., Moderator
San Francisco

Introduction and Indications
Dohrmann K. Pischel, M.D.

Mechanical Factors in Scleral Surgery
Graham Clark, M.D.
New York

The Scleral Resection Operation: Current Techniques
Peter C. Kronfeld, M.D.
Chicago

The Scleral Buckling Procedures
Charles L. Schepens, M.D.
Boston
BY INVITATION

Complications of Scleral Resection and Scleral Buckling Procedures
P. Robb McDonald, M.D.
Philadelphia

Conclusions
Dohrmann K. Pischel, M.D.

11:30 a.m.

SURGICAL REMOVAL OF EPITHELIAL DOWNGROWTH FROM THE ANTERIOR CHAMBER
(A Motion Picture)

A. Edward Maumenee, M.D.
Baltimore

Epithelial downgrowth following intraocular surgical procedures or trauma usually results in the loss of the eye be-

cause of secondary glaucoma and other complications. Treatment of this condition has been unsatisfactory.

Many conditions can simulate an epithelial downgrowth; therefore, lesions of this type should be diagnosed by biopsy prior to therapy.

A motion picture which depicts a successful surgical removal of an epithelial downgrowth following cataract extraction will be shown. The downgrowth is removed by curetting the posterior surface of the cornea and performing a complete basal iridectomy in the area of epithelial downgrowth involvement.

11:45 a.m.

INCIDENCE AND DETECTION OF GLAUCOMA BY ROUTINE TONOMETRY

G. LeRoy Porter, M.D.
Urbana, Illinois

Discusser:

Bruce L. Kantar, M.D.
Minneapolis

Recognition of glaucoma at the earliest possible moment in its development is universally accepted as extremely important. The initial demonstrable abnormality, perhaps excluding decreased facility of aqueous outflow, in chronic simple (open angle) glaucoma is usually an increase in intraocular pressure. Routine tonometric examination will disclose a significant number of cases with elevated intraocular pressure in which cupping of the optic disc, arterial pulsation, and visual field defects are not demonstrable.

The results of routine tonometric measurements in 2,000 patients over 40 years of age in the author's private practice will be reported. The percentage of patients found having intraocular pressure of 25 mm. Hg (Schiotz) or more without other visible evidence of glaucoma indicates that a substantial number of glaucoma cases which would otherwise pass unrecognized will be detected.

Indoctrination of internists and general practitioners in the necessity of including tonometry as a routine diagnostic procedure is a sine qua non in glaucoma detection. If this is to be accomplished, it will require both the example and precept of ophthalmologists.

SECTION ON OTOLARYNGOLOGY

Thursday, October 17, 1957

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
O. E. Van Alyea, M.D.
Vice-President

Secretary:
Eugene L. Derlacki, M.D.

INFLUENCE OF CIRCULATION ON THE EXTENT OF INVOLVEMENT AND TREATMENT IN EPITHELIOMAS OF THE UPPER RESPIRATORY AND DIGESTIVE TRACTS

Maurice Lenz, M.D.
New York
BY INVITATION

Discusser:

John F. Daly, M.D.
New York

Epitheliomas of the upper respiratory and digestive tracts are nourished through the arterial capillaries and extend through lymphatic capillaries in the tumor bed. It seems logical, therefore, to assume that variations in this circulatory mechanism may affect the growth behavior of these cancers. Richly vascularized tumor beds have an even, rich lymph capillary network, and poorly vascularized tumor beds have one which is less developed. Epitheliomas growing in richly vascularized tumor beds with a rich and widely calibered lymph capillary network, and muscle in the perilymphatic stroma, tend to grow rapidly, invasively, to be locally extensive and to metastasize to regional lymph nodes early.

Circulation of the tumor bed is, of course, only one of the many conditions which influence the extent of epithelioma and adenocarcinoma on admission. Other factors which bear on this problem are: accessibility to clinical diagnosis, cancer education of the patient and of the first doctor who sees the patient, duration of the growth, and above all, the inherent growth tendency of the individual cancer. Nevertheless, circulation in the tumor bed influences the extent of the epithelioma and, consequently, the results of treat-

ments. It should be considered in treatment planning by either surgery or radiotherapy in epitheliomas of the upper respiratory and digestive tracts.

2:30 p.m.

STRUCTURE AND FUNCTION OF THE MIDDLE EAR
(A Motion Picture)

Ichiro Kirikoe, M.D.
Tokyo, Japan
BY INVITATION

The structure and function of middle ears from lower vertebrates to mammals are comparatively observed. In the human middle ear, the vibration of tympanic membrane and ossicular chain is observed by stroboscopic illumination. Also shown are the close connections between the minute structure of ossicles, such as the arrangement of bony fibers, the thickness of bony cortex, and the boundary stress distribution of ossicles examined photoelastically.

2:55 p.m.

TYMPANIC CAVITY CLEARANCE STUDIES: AN AID IN THE EVALUATION OF EUSTACHIAN TUBE FUNCTION

Wesley E. Compere, Jr., M.D.
Pasadena, California

Discusser:
Henry B. Perlman, M.D.
Chicago

The present knowledge of physiology of the eustachian tube will be reviewed, with emphasis on tests used for appraising its function. A method will be presented for visualizing the eustachian tube radiographically, and for evaluating the capacity of the eustachian tube to empty the tympanic cavity of dye introduced through either a perforated or an intact drum.

3:25 p.m.

THE NOSE AND PARANASAL SINUSES: AN INTRODUCTION TO RHINOLOGY
(A Motion Picture)

Heinrich G. Kobrak, M.D., Ph.D.
Clarkston, Michigan

J. Edward Tremble, M.D.
Montreal, Que., Canada

This motion picture portrays the gross anatomy of the nose and of the paranasal sinus. The histology of the mucous membrane is shown in conventional, stained sections and by phase microscopy. The movements of the cilia are shown, and their significance is explained. The physiology of the nose is explained in its four aspects: olfactory, respiratory, immunological, and phonetic.

Anterior and posterior rhinoscopy are explained and demonstrated.

In the general clinical part, various types of mucous membrane (normal, hyperplastic, atrophic, allergic, etc.), various types of nasal lumina and of secretions are demonstrated.

Finally, a series of patients with the diagnosis chronic maxillary sinusitis, atrophic rhinitis, polyposis, septum deviation, foreign body, and cancer are shown.

3:45 p.m.

THE USE OF FREE SKIN GRAFTS AND PEDICLED FLAPS IN THE REPAIR OF NASAL DEFECTS

Delmar F. Weaver, M.D.
Detroit

Discusser:
John B. Erich, M.D.
Rochester, Minnesota

Many excellent articles dealing with the plastic repair of nasal defects are easily available in the medical literature; however, the circumstances in each case tend to vary considerably. Consequently, it seems worth while to review the subject briefly and present several cases from the author's personal experience. One of the cases will be presented in some detail.

Kodachrome slides will be used to augment the presentation.

4:15 p.m.

MOBILIZATION OF THE STAPES AND FENESTRATION OF THE OVAL WINDOW
(A Motion Picture)

Samuel Rosen, M.D.
New York

The film contains the historical development of ear surgery, the steps of the mobilization and fenestration procedures in the cadaver and in the living patient, the indications, goals and achievements of mobilization and fenestration of the oval window, with appropriate examples of audiologic testing before and after these procedures.

SECTION ON OPHTHALMOLOGY

Friday, October 18, 1957

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
ERLING W. HANSEN, M.D.
President

Secretary:
KENNETH L. ROPER, M.D.

A CASE OF BEHCET'S DISEASE
(A Clinicopathologic Case Report)

Alson E. Braley, M.D.
Iowa City, Iowa

History, clinical findings and complete histopathologic report.

9:10 a.m.

PRESENTATION OF NEW INSTRUMENTS

9:20 a.m.

TARSAL-PERIOSTEAL-FRONTALIS SUTURES FOR THE CORRECTION OF PALPEBRAL PTOSIS
(A Motion Picture)

John W. Henderson, M.D.
Rochester, Minnesota

This motion picture will depict a modification of the widely used principle of suspending the upper eyelid from the occipital-frontalis muscle for correction of palpebral ptosis. The basic aim of the operation to be shown is to suspend the tarsal plate of the eyelid by three sutures directly from several points at the junction of the orbital septum with the periosteum along the superior rim of the orbit. The occipital-frontalis muscle is utilized as a supplementary anchorage for the sutures. The advantages of this procedure as compared to other types of suspension operations will be pointed out.

9:30 a.m.

PSEUDOTUMOR CEREBRI

J. Lawton Smith, M.D.
Baltimore
BY INVITATION

Discusser:
Robert W. Hollenhorst, M.D.
Rochester, Minnesota

Thirty-six cases of pseudotumor cerebri seen in The Johns Hopkins Hospital between 1937 and January 1957 are reviewed. It is interesting to note that of 342 cases hospitalized there between 1937 and 1952 in which the presence of a brain tumor was the initial impression, 31 or approximately 10 per cent were subsequently shown to have pseudotumor cerebri.

Sixth nerve palsies in pseudotumor cerebri were found to have significance not formerly appreciated. Almost invariably abducens paralysis clears and leaves no residua. In two cases in this series, however, the end result was a constant esotropia, which became comitant. The histories of these two cases and two other cases of pseudotumor cerebri interesting in regard to strabismus, are discussed. Other clinical features, the pathogenesis of intracranial hypertension, and the indications for subtemporal decompression for papilledema in these patients are discussed.

10:00 a.m.

SOME APPLICATIONS OF HISTOCHEMICAL METHODS FOR THE DEMONSTRATION OF ACID MUCOPOLYSACCHARIDES TO OPHTHALMIC PATHOLOGY

Lorenz E. Zimmerman, M.D.
Washington, D. C.
BY INVITATION

Discussers:
George K. Smelser, Ph.D.
New York

John E. Harris, M.D
Portland, Oregon

New methods for the histochemical localization of acid mucopolysaccharides, based upon the affinity of these substances for colloidal iron and for alcian blue, have been applied to the study of normal and pathologic ocular tissues. The techniques employed are applicable to formalin-fixed, paraffin-imbedded tissues. They have, therefore, been used in conjunction with routine histopathologic studies. Comparative studies have also been made of the staining reactions of tissue sections treated with bovine testicular hyaluronidase.

Hyaluronidase-sensitive acid mucopolysaccharides (AMP) are normally demonstrable within the vitreous and between the corneoscleral trabeculae. The rod-and-cone layer of the normal retina gives an intensely positive reaction for AMP, but this is not altered by pretreatment with hyaluronidase. The ground substance of the sclera (especially posteriorly) contains much more stainable AMP (which is not sensitive to hyaluronidase) than does the cornea.

Some of the changes found in pathologic tissues include (1) appearance of AMP in certain lesions of the cornea; (2) loss of AMP in degenerations of the vitreous and in lesions affecting the rod-and-cone layer; (3) massive accumulation of hyaluronidase-sensitive AMP in glaucomatous degeneration of the optic disc and in the cavernous spaces of nerves showing "cavernous optic atrophy"; (4) accumulation of AMP in the necrotic areas of retinoblastoma (preceding dystrophic calcification), in the liquefied cortex of morgagnian cataracts, and in the mucinous portions of optic nerve gliomas.

10:25 a.m.

OPTIC NEURITIS FOLLOWING CATARACT EXTRACTION

Algernon B. Reese, M.D.
Frank D. Carroll, M.D.
New York

Discusser:

C. Dwight Townes, M.D.
Louisville, Kentucky

Following an intracapsular cataract extraction, optic neuritis may infrequently appear, usually from the sixth to the twelfth week after operation. Vision postoperatively is normal. During the active phase of the neuritis it ranges from 20/70 to hand movements. A central scotoma is always present. Occasionally some contraction of the visual fields or a nerve-fiber-bundle type of defect is also found. Out of 17 eyes involved, final vision returned to 20/30 or better in only 6 eyes. It ranged from 20/40 to hand movements in the remainder. Ultimately there is some pallor of the nerve and an atresia or sclerosis (silver-wire appearance) of one or more of the smaller arterioles around the disc. In 2 patients who had had operations on both eyes the complication occurred in each eye, but 7 other patients had no complications following operation on the second eye.

11:00 a.m.

DIABETIC NEUROPATHY AS A CAUSE OF EXTRAOCULAR MUSCLE PALSY

Daniel Snydacker, M.D.
Chicago

Discusser:

Irving H. Leopold, M.D.
Philadelphia

The fact that the motor nerves to the extraocular muscles could be involved by the neuropathy occurring in diabetes mellitus has been recognized for nearly a hundred years, but there has been little emphasis on this complication of the disease in the recent ophthalmic literature. The literature will be briefly reviewed and five cases will be described. On the basis of these descriptions and those in the literature, the diagnosis, course and prognosis of this complication will be discussed.

11:30 a.m.

OPHTHALMOLOGIC ALLERGY

(Sponsored by the American Society of Ophthalmo'ogic and Otolaryngologic Allergy)

Alson E. Braley, M.D.
Iowa City, Iowa

Discussers:

A. D. Ruedemann, M.D.
Detroit

Brittain F. Payne, M.D.
New York

12:00 M. — Business Meeting of the American Society of Ophthalmologic and Otolaryngologic Allergy

SPECIAL SCIENTIFIC PROGRAMS

These Special Programs are open meetings. All members and guests of the Academy are welcome to attend.

TEACHERS' SECTION—OPHTHALMOLOGY

Grand Ballroom

Sunday, 10:00 a.m.

A. D. Ruedemann, M.D., *Chairman*

The Time Factor in Graduate Education

Three-Year Residency

Francis H. Adler, M.D., Philadelphia
(University of Pennsylvania)

Four-Year Term

Alson E. Braley, M.D., Iowa City, Iowa
(University of Iowa)

Shortening the Medical Education Span, Including That of Undergraduate or Graduate Education

John H. Dunnington, M.D., New York
(Columbia University)

Three-Year Residency

Edwin B. Dunphy, M.D., Boston
(Harvard University)

Three Years or Longer in the Residency Program

Edward A. Maumenee, M.D., Baltimore
(Johns Hopkins University)

TEACHERS' SECTION—OTOLARYNGOLOGY

Crystal Room

Sunday, 10:00 a.m.

Gordon D. Hoople, M.D., *Chairman*

Motion Pictures: Their Use and Misuse in Teaching

Francis A. Sooy, M.D., San Francisco
(University of California)

Lantern Slides: Their Scope and Limitations in Teaching Medical Students

David D. DeWeese, M.D., Portland, Oregon
(University of Oregon)

Television: Potentialities and Problems as a Teaching Medium

Gunnar O. Proud, M.D.
Kansas City, Missouri
(University of Kansas)

David S. Ruhe, M.D.
Kansas City, Missouri
(University of Kansas)

The Value of Humor in Otolaryngologic Teaching

Lester A. Brown, M.D., Atlanta
(Emory University)

Evaluation of Otolaryngologic Residencies by Regional Evaluators

Bernard J. McMahon, M.D., *Coordinator*

OTOSCLEROSIS STUDY GROUP and COMMITTEE ON CONSERVATION OF HEARING

Grand Ballroom

Sunday, 8:00 p.m.

Dean M. Lierle, M.D.
Joseph A. Sullivan, M.D.
Co-Chairmen

An Investigation of the Long-Term Effects of Fenestration Surgery on Auditory Nerve Degeneration

Alan Feldman, Ph.D.
Boston

Discussers:
George E. Shambaugh, Jr., M.D., Chicago
Howard P. House, M.D., Los Angeles

Audiometric Manifestations of Inner Ear Physiology

MERLE LAWRENCE, Ph.D.
Ann Arbor, Michigan

DISCUSSERS:
THEODORE E. WALSH, M.D., St. Louis
CLAIR KOS, M.D., Iowa City, Iowa

Usefulness of the Binaural Hearing Aid

RAYMOND CARHART, Ph.D.
Evanston, Illinois

DISCUSSERS:
SCOTT N. REGER, Ph.D., Iowa City Iowa
VICTOR GOODHILL, M.D., Los Angeles

AMERICAN ORTHOPTIC COUNCIL
and
AMERICAN ASSOCIATION OF ORTHOPTIC TECHNICIANS

Williford Room

Conrad Hilton Hotel

Sunday, 8:00 p.m.

HERMANN M. BURIAN, M.D.
President

EDMOND L. COOPER, M.D.
Secretary-Treasurer

The Value of Orthoptics in Achieving Postoperative Third-Degree Fusion

RAYNOLD E. BERKE, M.D.
Hackensack, New Jersey

Technique and Evaluation of Occlusion of the Paramacular Image of the Deviating Eye

ANITA J. STELZER
St. Louis

Oculomotor Imbalances and Fixation Disparity

KENNETH N. OGLE, Ph.D.
Rochester, Minnesota

A Short Method for Treating Abnormal Retinal Correspondence

ALEATHA J. TIBBS
Atlanta

(A limited number of questions may be answered by the speakers if time allows.)

COMMITTEE ON PLASTIC AND RECONSTRUCTIVE SURGERY— OTOLARYNGOLOGICAL AND MAXILLOFACIAL

Crystal Room, Sherman Hotel

Tuesday, 8:00 p.m.

JOHN MARQUIS CONVERSE, M.D.
Chairman

FRACTURES OF THE FACIAL SKELETON: A PANEL DISCUSSION

Moderator

JOHN MARQUIS CONVERSE, M.D.
New York

Fractures of the Facial Skeleton: Anatomical Considerations

HARRY H. SHAPIRO, D.M.D.
New York

Fractures of the Bones of the Middle Third of the Face

WILLIAM C. HUFFMAN, M.D.
Iowa City, Iowa

Principles of Treatment of Mandibular Fractures

CLARENCE A. DUNN, D.D.S.
New York

Orbital Complications of Facial Fractures

BYRON SMITH, M.D.
New York

Neurosurgical Complications of Facial Fractures

EDGAR A. KAHN, M.D.
Ann Arbor, Michigan

Discussion Leader
V. H. KAZANJIAN, M.D.
Boston

COMMITTEE ON PLASTIC AND RECONSTRUCTIVE SURGERY—OPHTHALMOLOGICAL

George Bernard Shaw Room,

Sherman Hotel

Tuesday, 8:00 p.m.

WENDELL L. HUGHES, M.D.
Chairman

LACRIMAL APPARATUS

Practical Fundamentals of Anatomy and Physiology

LESTER T. JONES, M.D.
Portland, Oregon

Abnormalities and Treatment of Lacrimal Apparatus

I. LACRIMAL GLAND

ALGERNON B. REESE, M.D.
New York

II. PUNCTUM AND CANALICULUS

EVERETT R. VEIRS, M.D.
Temple, Texas

III. LACRIMAL SAC AND NASOLACRIMAL DUCT

J. VERNAL CASSADY, M.D.
South Bend, Indiana

Discussion

CROWELL BEARD, M.D.
San Jose, California

EDMUND B. SPAETH, M.D.
Philadelphia

WENDELL L. HUGHES, M.D.
New York

AMERICAN SOCIETY OF OPHTHALMOLOGIC and OTOLARYNGOLOGIC ALLERGY

Crystal Room

Friday, 9:00 a.m.

SAM H. SANDERS, M.D.
President

MICHAEL H. BARONE, M.D.
Secretary

Hormones Related to Allergy

Z. Z. GODLOWSKI, M.D., Ph.D.
Chicago

Modern Management of Nasal Polyposis

WALTER E. OWEN, M.D.
Peoria, Illinois

DISCUSSER:

GUY A. OWSLEY, M.D.
Hartford City, Indiana

Allergic Dermatoses in Ophthalmology and Otolaryngology

KENNETH L. CRAFT, M.D.
Indianapolis

DISCUSSER:

DURWARD A. SKINNER, M.D.
Newark, Ohio

Round Table

(Questions from Floor)

SAM H. SANDERS, M.D., *Moderator*
KENNETH L. CRAFT, M.D.
WALTER E. OWEN, M.D.
FRENCH K. HANSEL, M.D.
AUBREY G. RAWLINS, M.D.
Z. Z. GODLOWSKI, M.D., Ph.D.

The meeting will adjourn to the Grand Ballroom for the final paper and the business session.

Ophthalmologic Allergy

ALSON E. BRALEY, M.D.
Iowa City, Iowa

DISCUSSERS:

A. D. RUEDEMANN, M.D.
Detroit

BRITTAIN F. PAYNE, M.D.
New York

Business Meeting

SCIENTIFIC EXHIBITS

KENNETH L. ROPER, M.D., *Chairman*
EUGENE L. DERLACKI, M.D., *Co-Chairman*

CHICAGO, ILLINOIS

LOCATION:

Club Floor

PDR 15, 16, 17
Club Foyer

Exhibit S-1

Acrylic Schematic Eye

HAROLD F. FALLS, M.D., BURTON R. JAMES, M.D. (by invitation), and FREDERICK A. WAARA (by invitation), University of Michigan Medical School, Ann Arbor, Michigan

Acrylic schematic eye depicting various anomalies by means of (1) defects represented in section, and (2) defects represented by life-sized models of the globe, examinable by usual ophthalmoscopic methods.

Exhibit S-2

Why Patients with Cataracts Go Blind

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, New York, represented by Franklin M. Foote, M.D., Executive Director (by invitation), Virginia Smith Boyce, Assistant Director (by invitation), and Ruby M. Hopkins (by invitation)

The results of a study of 200 recently reported cases of blindness due to cataract. The patients have been interviewed to determine the reason for their failure to seek surgical intervention. The exhibit will include statistical charts, diagrams, and case reports.

Exhibit S-3

Blindness: Its Problems And Its Potentials

AMERICAN FOUNDATION FOR THE BLIND, INC., New York, represented by M. Robert Barnett, Executive Director (by invitation), Richard E. Hoover, M.D., Baltimore (by invitation), and Kathern F. Gruber, Assistant Director (by invitation)

Literature exhibited will give information concerning the problems of blindness, current research in this field, and available resources and present programs of service to blind persons. Professional staff members of the American Foundation for the Blind and Dr. Richard Hoover, coordinator of the Optical Aids Research Advisory Committee of the Foundation, will be in attendance at the booth.

Exhibit S-4

Home Study Courses

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, represented by Daniel Snydacker, M.D., Secretary for Home Study Courses, Chicago, and Ben H. Senturia, M.D., Associate Secretary in charge of Otolaryngology, St. Louis

This exhibit will show the purposes, scope, and organization of the Home Study Courses.

Exhibit S-5

Clinical Audiometry

COMMITTEE ON CONSERVATION OF HEARING, AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, represented by Dean M. Lierle, M.D., Chairman, Iowa City, Iowa

A demonstration of audiometric procedures suitable for employment in the otologist's office without unusual equipment. Charts will display the results of audiometric examination characteristic of different types of hearing loss. Equipment and demonstrators will be available so that problems of technique can be explained to the interested physician.

Exhibit S-6

Orthoptics in the Ophthalmologist's Office

THE AMERICAN ASSOCIATION OF ORTHOPTIC TECHNICIANS, represented by Dixie Jean Wehrheim, Nashville, Tennessee (by invitation)

This exhibit will depict five common orthoptic problems, their ideal treatment in the orthoptic office, and modified techniques for use by the ophthalmologist.

Exhibit S-7

Audiology in the Veterans Administration

PHYSICAL MEDICINE AND REHABILITATION SERVICE AND DEPARTMENT OF VETERANS BENEFITS, VETERANS ADMINISTRATION, WASHINGTON, D. C., represented by Bernard M. Andermann, Ed.D. (by invitation), Norton Canfield, M.D., New Haven, Connecticut, G. Donald Causey, Ph.D. (by invitation), Raymond T. Carhart, Ph.D., Evanston, Illinois (by invitation), and A. B. C. Knudson, M.D. (by invitation)

The development and operation of the audiologic program in the Veterans Administration has, in many ways, affected the lives of numerous veterans and the communities in which they live. An incidental but important aspect of the program has been its stimulating effect on the growth of the field of Audiology and Hearing Clinics throughout the United States.

Exhibit S-8

Automatic Audiometer

FRANCIS A. BROGAN (by invitation), United States Air Force, School of Aviation Medicine, Randolph Air Force Base, Texas

This automatic audiometer makes it possible to simulate manual test technique. This new method differs from the Bekesy-test technique in that a score period is presented with each pulsed tone and a decision is made by the instrument as to the time correlation of the response to the stimulus. Various forms of recorders can be used with this instrument, such as IBM, adding-machine type printers, annunciator panels, and typewriters. This instrument was developed by the Audiology Section at the United States Air Force School of Aviation Medicine.

Exhibit S-9

The Olfactory Apparatus: Comparative Study of Man and Mammals

PHILIP WEINSTEIN, M.D., Miami, Florida

Through the showing of whole and sectional human skulls ranging in age from more than 1000 years to the present generation, in contrast to approximately 40 sectioned mammalian skulls, the development and function of the olfactory apparatus is compared.

Exhibit S-10

New Eyes for the Needy, Inc.

NEW EYES FOR THE NEEDY, INC., Short Hills, New Jersey, represented by Mrs. Arthur F. Goat (by invita-

tion), and Mrs. Cyrus R. Currier (by invitation), Short Hills, New Jersey, and Mrs. James S. Van Derbeck, Chatham, New Jersey, (by invitation)

New Eyes for the Needy is a nonprofit volunteer charity dedicated to providing better vision to needy people both in this country and abroad. No money is solicited; the work is made possible through reclamation of discarded eye glasses and precious-metal scrap. New prescription glasses and artificial eyes are given to individuals screened by welfare agencies. Reusable plastic framed glasses are tested and sent to hospital clinics and foreign missions. Funds have been established with 64 hospitals, and many welfare agencies are allotted specific numbers of glasses per year.

Exhibit S-11

Central Retinitis Associated with Amebiasis

ALSON E. BRALEY, M.D., and HENRY E. HAMILTON, M.D. (by invitation), State University of Iowa College of Medicine, Iowa City, Iowa

A report is given of nine patients with central or macular lesions and evidence of amebiasis, in whom progression of the fundus lesion was stopped and healing took place when they were properly treated for amebiasis. Fundus photographs and drawings show typical lesions and changes related to treatment. The effect of treatment with antibiotic and antiamebic drugs is related to recurrent symptoms of clinical amebiasis and to progression, regression and healing of the fundus lesions, arrest of visual loss, and occasional improvement of vision. It is suggested that all patients with a macular lesion of obscure cause be studied for evidence of amebiasis.

Exhibit S-12

Practical Tonography

WILLIS S. KNIGHTON, M.D., and ANDREW DE ROETTH, JR., M.D., The Institute of Ophthalmology, Presbyterian Hospital, New York

How tonography is done, how it is interpreted, and how it is affected by medication: a presentation by means of diagrams, charts, and transparencies. The application of tonography and its value in angle closure, in simple glaucoma, and in suspected cases will be shown graphically. Actual tracings will be used to illustrate typical values. Tonography without tracings will be discussed.

Exhibit S-13

Dacryocystography

BENJAMIN MILDER, M.D., St. Louis, and BYRON H. DEMOREST, M.D., U. S. Naval Hospital, Great Lakes, Illinois, representing the Department of Ophthalmology, Washington University School of Medicine, St. Louis

This demonstration reviews briefly the technique of dacryocystography, employing Pantopaque as the contrast medium. Normal roentgen findings in all portions of the lacrimal drainage system are compared with illustrations of common abnormal conditions. The distinction between a patent system and a normally functioning system is illustrated.

Exhibit S-14

Modern Vascular Headache Management

ROBERT E. RYAN, M.D., St. Louis

The intracranial and extracranial anatomical structures involved in vascular headache will be shown on a large revolving head. The condition of the various blood vessels and nerves in the phases of vascular headache will be illustrated. The symptomatology and present-day treatment of vascular headache (migraine, tension headache, histaminic cephalalgia) will be presented.

Exhibit S-15

Conoid Ophthalmic Lenses: An Original Development in Subnormal Vision Aids

DAVID VOLK, M.D. (by invitation), Western Reserve University School of Medicine, Cleveland

The exhibit presents the results of original investigation in the designing and production of strong plus aspheric crown glass ophthalmic lenses to be used for close work by individuals with subnormal vision. The investigation revealed that the lens surfaces are prolate elipsoids, paraboloids, and hyperboloids, hence the naming of the lenses conoid. The exhibit presents a demonstration of conic sections and their application to lenses. The four main aberrations found in strong plus spheric lenses are demonstrated, and the correction of each aberration with conoid lenses is shown. Conoid lenses from 15 to 100 diopters are on display. Graphs indicating some of the qualities of conoid lenses are part of the exhibit. The relationship between visual acuity and the power of the conoid lens necessary for reading is shown graphically.

Exhibit S-16

Tympanic Skin Grafting and Reconstruction of the Middle Ear Sound-Conduction Mechanism

FRED R. GUILFORD, M.D., WILLIAM K. WRIGHT, M.D., and W. LEONARD DRAPER, M.D. (by invitation), Baylor University College of Medicine, Houston, Texas, and the University of Texas, Medical Branch, Galveston, Texas

This exhibit illustrates a technique of closure of tympanic perforations and the physiologic principles involved in the success of the procedure. The exhibit will also demonstrate the application of this technique in modifying surgical procedures for otitic suppuration and in reconstruction of the middle ear sound-conduction mechanism.

Exhibit S-17

Complications of Cataract Operations in Stereophotographs

PETER C. KRONFELD, M.D., H. ISABELLE McGARRY, M.D., and SAM T. JONES, M.D. (by invitation), University of Illinois College of Medicine, Chicago, and St. Francis Hospital, Evanston, Illinois

External photography and goniostereophotography with the Donaldson Camera offer views that may be superior to and clinically more valuable than those obtained by routine methods of examination. This will be illustrated by a series of external photographs and goniophotographs depicting typical complications of cataract extractions.

Exhibit S-18

Studies of the Trabecular Meshwork of Normal and Glaucomatous Eyes

MILTON FLOCKS, M.D., Palo Alto, California, and E. HOMER BRUGGE, M.D., Oakland, California (by invitation), Stanford University School of Medicine, San Francisco

An exhibit of enlarged color photomicrographs and drawings illustrating studies of (1) the anatomy of the trabecular meshwork, particularly as seen in tangential sections, (2) the pathology of the meshwork in primary open angle glaucoma and in several types of secondary glaucoma, particularly as seen in tangential sections, (3) certain aspects of the physiology of the trabecular meshwork, especially the effect of miotics and mydriatics on the appearance of the meshwork of monkey eyes as seen in tangential and meridional sections.

Exhibit S-19

Surgical Pathology of Cholesteatoma of Middle Ear and Mastoid

RICHARD A. BUCKINGHAM, M.D., University of Illinois College of Medicine, Illinois Eye and Ear Infirmary, Chicago

This exhibit shows the surgical pathology of cholesteatoma. The material is covered in four sections: 1. The nature of cholesteatoma is presented. The epithelial saclike character is demonstrated. 2. The reaction that cholesteatoma elicits in bone is demonstrated, from a pneumatized mastoid filled with granulation to complete sclerosis. 3. The erosive character of cholesteatoma is demonstrated in photographs of the erosion of the ossicular chain and labyrinth. 4. A clinical classification of surgical pathology of cholesteatoma is presented. The exhibit consists of 46 Ektachrome transparencies with illustrative diagrams and labels.

Exhibit S-20

The Fenestration Operation: Twenty Years of Refinement

J. BROWN FARRIOR, M.D., Tampa, Florida

The exhibit demonstrates the refinement in surgical technique of the fenestration operation. A series of anatomical dissections demonstrates the major steps of the procedure. The detailed phases of the operation are illustrated by accompanying color photographs of operations. All are shown under magnification. Stress is placed upon the microscopic (40×) perfection of the fenestra and flap and on continuous fenestral pressure. Experience reveals that while the stapes mobilization is a worth-while procedure, the fenestration operation, perfectly performed, is much more reliable.

Exhibit S-21

Chronic Uveitis: Long-Term Therapy

DAN M. GORDON, M.D., New York Hospital-Cornell Medical Center and Lillian Margolyes Association, New York

A concise illustrated guide to the management of acute, chronic, and recurrent uveitis and sympathetic ophthalmia. The complications of uveitis are listed and their management detailed. The general principles of hormonal steroid and etiologic therapy are outlined.

Exhibit S-22

Monitored Stapes Mobilization: The Peribasal Approach

VICTOR GOODHILL, M.D., SEYMOUR J. BROCKMAN, M.D., and ARTHUR L. HOLCOMB, E.E. (by invitation), Deafness Research Laboratory, Children's Hospital, Cedars of Lebanon Hospital, University of Southern California, Los Angeles

Successful stapes mobilization for otosclerosis requires an orderly surgical procedure under precise visual control monitored by nomographic surgical audiometry. Dissected models, along with photographs and drawings, will be employed to demonstrate the surgeons' preferred direct peribasal approach technique. The nomographic audiometric technique will be displayed along with analyses of surgical statistics.

Exhibit S-23

Fantasia Ophthalmologica

EMIL G. BETHKE (by invitation), The Institute of Ophtnalmology, Presbyterian Hospital, New York

A series of 12 paintings depicting (1) imaginative and fantastic conceptions of ophthalmological anatomy and (2) actual cases, executed within the bounds of reality.

TECHNICAL EXHIBITORS — 1957

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TECHNICAL EXHIBITS

The Academy is appreciative of the cooperation of all technical exhibitors.

Booths with numbers preceded by "R" are located in the Red Lacquer Room.

Alcon Laboratories, Inc., Fort Worth, Texas **Booths 58 and 59**

New packagings of Alcon Sterile Ophthalmic Solutions are featured. Eight commonly used ophthalmic preparations are now available in Alcon's 1-cc. Drop-tainer Steri-Unit—a new single-dose disposable unit with sterile outer surfaces.

A new sterile ophthalmic preparation will also be featured. The new preparation, Isopto P-H-N, combines Polymyxin, Neomycin and Hydrocortisone (0.5 per cent and 1.5 per cent) in a methylcellulose vehicle for rapid and effective treatment of allergic and bacterial conjunctivitis, meobomianitis and blepharitis.

Alcon's full line of Drop-tainer Sterile Ophthalmic preparations will be exhibited along with Alcon-efrin, a specially formulated nonstinging, nonirritating nasal decongestant in three strengths.

The Alkalol Company, Taunton, Mass. **Booth 29**

The Alkalol Company is featuring Alkalol, a solution especially designed for the treatment of the mucous membranes of the nose and throat.

First compounded in 1896, its balanced formula of salts and essential oils makes a solution that is effective and at the same time nontoxic, mild and pleasant. It is alkaline and a mucus solvent.

Alkalol is an excellent vehicle for many drugs. For further information please call at Booth 29.

Ambco, Inc., Los Angeles **Booth R-35**

You are cordially invited to inspect our line of audiometers, speech training equipment, and hearing aids. Competent personnel will be on hand to answer your questions and offer help.

Two new products will be announced.

American Cyanamid Company, Surgical Products Division, Danbury, Conn. **Booth R-16**

American Cyanamid Company, Surgical Products Division, manufacturers of Davis & Geck Brand sutures and other surgical specialties, will feature new suture packagings, Surgilar® and Surgilope®, designed to eliminate broken glass in the operating room. All the popular Atraumatic® needle-suture combinations for eye, ear, nose and throat surgery, including inverted cutting-edge needles, will be shown. Other products will include nylon-mesh Aureomycin® surgical dressings and packing, and Dermalon® plastic sutures.

American Optical Company, Southbridge, Mass. **Booths 7 through 14**

Many ophthalmic materials and equipment will be on display in the American Optical Company booths.

Instruments will include a new, improved Schepens Binocular Indirect Ophthalmoscope; the new Rx Master Phoroptor, with many exclusive optical and mechanical features; the motorized refracting chair and stand; complete lines of diagnostic and orthoptic instruments; the new and improved edition of the AO H-R-R Color Test; and the Projection Magnifier.

Tillyer Plasticor and Tillyer Executive Multifocal Lenses, and microscopic lenses for subnormal vision will be shown, as well as frames for patients with cataract and with ptosis.

An electronic device for determining lens surface imperfections will be demonstrated.

The American Tobacco Company, Research Laboratory, Richmond, Va. **Booths R-17 and R-18**

The exhibit of the Research Laboratory of The American Tobacco Company

will include samples of the four main types of cigarette tobaccos, suitably labeled and described.

The exhibit will feature a new recording automatic cigarette-weighing balance which has been recently developed by The American Tobacco Company Instrument Division. This balance utilizes a servo mechanism and eliminates the human factor in the determination of cigarette weights on a laboratory scale. Original application of well known principles such as this results in closer control of quality in the manufacture of LUCKY STRIKE, PALL MALL, TAREYTON, and HIT PARADE cigarettes.

Armco Mercantile Co., Chicago
Booth R-23

Armorlite Lens Company, Pasadena, Calif. **Booth R-47**

The Armorlite Lens Company, developers of durable hard resin lenses, will demonstrate the wide range in which light-weight, safe lenses are now available.

These will include examples of the safest of all lenses for children, athletes and industrial workers; of feather-weight aphakic bifocals; and of ultraviolet-absorbing hard resin lenses. Ultraviolet-absorbing lenses are crystal white and more perfectly transparent than glass to all light useful in seeing, yet they totally absorb all deleterious ultraviolet rays.

Artificial Human Eyes **Booth R-21**

Joint exhibitors in this booth are E. & S. Danz, New York; Greiner & Mueller, Chicago; Erickson Laboratories, Seattle and Spokane; Hugo Leipold, Pittsburgh; G. Danz & Sons, San Francisco; and Earle C. Schreiber, Inc., Newark, N. J.

This exhibit of Artificial Human Eyes will include color photos of unusual cases. Erickson Laboratories will exhibit the new implant which will be presented formally at the Academy meeting by Dr. Wood Lyda, as well as a new method of sterilization for implants that has proved very satisfactory. An implant and conformer for every type and preference will also be found here, and we shall repeat an exhibit of causes of frequent "unsolvable" irritations from ocular prostheses.

We will also be on hand to discuss individual fitting problems with sincerity and humility.

Audivox, Inc., Boston **Booth 42**

The complete line of audiometers by Audivox, Inc., successors to Western Electric Hearing Aid Division, including Pure Tone, Diagnostic, and Screening Models and their accessories. Also, a complete line of the latest Audivox hearing aids.

Aurex Corporation, Chicago **Booth R-20**

Several different models of Aurex high fidelity, precision-built, transistor-type hearing aids will be on display. With color-coded, built-in compensating screws, Aurex four-transistor—no transformer—hearing aids may be acoustically related to individual hearing losses as revealed by air conduction audiograms. We will show by charts and other visible means the effectiveness of the precise adjustments and the simplicity with which they may be handled by professional people.

We will display and demonstrate how immediate speech rehabilitation may be obtained for total laryngectomies. This will be done with an Electrolarynx, an electromagnetic device powered by a 6-volt dry cell battery. Words can be mastered in five seconds by the average total laryngectomee who has recovered from the operation.

Austin Belgard, Inc., Chicago
Booths 18 and half of 19

Ayerst Laboratories, Chicago
Booth R-25

The Ayerst exhibit will feature PREMARIN INTRAVENOUS and MEDIATRIC.

PREMARIN INTRAVENOUS is indicated for rapid control of spontaneous hemorrhage. It has been used for safe and effective control of bleeding in epistaxis, post-tonsillectomy hemorrhage, post-adenoidectomy bleeding, intraocular hemorrhage, and delayed post-traumatic bleeding. Hemorrhage is frequently con-

trolled in thirty minutes or less. No toxic manifestations or untoward side effects have been reported with its use.

MEDIATRIC, a steroid-nutritional compound, provides a constructive approach to better health for aging patients. The selected ingredients help retard the degenerative changes of aging.

Barnett Optical Laboratories, Chicago
Booth 37

An innovation for teaching in the form of stereoscopic color transparencies of the eye will be exhibited for the first time. These color slides will be available in three sets and can be viewed with all standard stereo viewers and stereo projectors. A complete line of stereo viewers and projection equipment will be shown in conjunction with these sensational eye slides.

A low cost camera unit will also be introduced.

Standard photographic equipment, accessories, and optical specialties of interest will also be on display.

Bausch & Lomb Optical Co., Rochester, N. Y. Booths 95 through 102

Bausch & Lomb invites you to examine our new products for the ophthalmic office. Of special interest to ophthalmologists who have contacts with school health work is the new Bausch & Lomb School Vision Tester, which is specifically designed for school application. The new Bausch & Lomb Motorized Refracting Unit will be demonstrated.

Also on display in the Bausch & Lomb exhibit will be the full line of diagnostic instruments, the Bausch & Lomb ophthalmic lenses, and a wide variety of Bausch & Lomb frames and mountings.

Beltone Hearing Aid Co., Chicago
Booth R-9

The Beltone exhibit will include the new clinical audiometer, the Beltone Model 15-A. This audiometer is designed for use in one-room or two-room arrangements and performs all types of speech and hearing tests necessary for a complete hearing evaluation. White noise or complex noise is available as a masking source. Two attenuators, graduated in one-decibel steps, are continually variable, eliminating clicks; this produces more accurate defining of the balance between the ears. The instrument provides inputs for psychogalvanic skin-response tests, delayed-speech tests and a warble tone adapter. Extra 500-1000 cycle oscillator provides both manual and automatic pulsing.

Also exhibited will be the Beltone Model 9-A audiometer—a new basic audiometer ideally suited for use in screening tests in schools and industry, and the Beltone Models 10-A and 12-A—versatile, diagnostic instruments ideally suited for clinical and office use.

You are cordially invited to inspect the new Slimette Model Beltone eyeglass hearing aid which makes the practical application and advantages of binaural hearing possible. The new "Invisible" Model Beltone bone-conduction eye-glass hearing aid will also be exhibited.

Benson Optical Company, Minneapolis
Booths 85, 86, 87

Benson Optical Company will have information on ocular prostheses, including contact lenses, the new Younger Invisible bifocal, plastic lenses and various types of lenses for the unusual, complicated prescriptions. (There will be a complete compliment of frames for women, children, and men, including custom designs and colors obtained through the new color-fuse process.) Complete Professional Suite style room and dispensing room equipment on hand for your examination and discussion.

The Blakiston Division, McGraw-Hill Book Co., New York Booth 62

Featured at the booth of Blakiston Division, McGraw-Hill will be ATLAS OF EYE SURGERY by R. Townley Paton, M.D., F.A.C.S., and Herbert M. Katzin, M.D., F.A.C.S., with illustrations by Daisy Stilwell. This atlas is designed to provide a sound foundation in technique for the resident surgeon in the department of ophthalmology and a quick reference for the ophthalmic surgeon. The text is brief and is illustrated by 464 extraordinarily fine and detailed

line drawings of surgical procedures, all drawn from the point of view of the operating surgeon and clearly indicating intended procedures. Two other outstanding books on display at our booth will be the new Second English Edition of Dr. Hermenegildo Arruga's OCULAR SURGERY, featuring new techniques and the most interesting modifications of the old ones which have appeared in recent years, and R. Townley Paton's KERATOPLASTY, covering case selection, techniques, healing, and eye banks. There will even be a book for children by John Perry, titled OUR WONDERFUL EYES.

Boll & Lewis Optical Co., Chicago
Booths 43 and 44

We shall feature the latest mechanical means for the correction of subnormal vision; temporary and permanent bifocal and trifocal cataract grindings; diagnostic equipment; ophthalmological equipment; Armorlite plastic lenses; contact lenses; and the newest styles in frames and mountings.

Broemmel Pharmaceuticals, San Francisco Booth 63

Broemmel Pharmaceuticals will exhibit its line of specialty products designed to meet the needs of the eye, ear, nose and throat field.

Our staff of well-informed medical-detail men will be on hand to demonstrate the application of OP-HYDRIN, a combination of hydrocortisone acetate and phenylephrine hydrochloride for ophthalmic use; CORTOMIXIN, a sterile ear solution containing hydrocortisone and polymyxin B sulfate dissolved in propylene glycol; and ISOPHRIN nasal for the decongestion of the nasal mucosa.

May we invite you to stop by for samples and literature.

Burroughs Wellcome & Co. (USA), Inc. Tuckahoe, N. Y. Booth 120

NEW PRODUCTS

The extensive research facilities of "B. W. & Co." both here and in other countries are directed to the development of improved therapeutic agents and techniques. Much basic theoretical work in our laboratories, and in cooperation with internationally known institutions, is contributing to the reservoir of fundamental medical knowledge.

Through such research, "B. W. & Co." has made notable advances related to leukemia, malaria, diabetes, and diseases of the autonomic nervous system; and to antibiotic, muscle-relaxant, antihistaminic, and antinauseant drugs.

An informed staff at our booth will welcome the opportunity to discuss our products and latest developments with you.

Cameron Surgical Specialty Co., Chicago
Booth 76

Every doctor likes to see new instruments. This year we will have several, including a de luxe-model stainless-steel Electro-Surgical Unit designed for hospital or large clinic use, in addition to our standard small, portable (16 lbs.) Cauteradiodyne.

Our Lempert Headlite (the original) in the 1957 model, gives the brightest and coolest light, yet is the safest headlite available. The safety-model Lempert Headlite has been accepted for use in the presence of combustible gases by various safety authorities.

The "Leaders" still insist upon CAMERON in headlites, loupes and electrosurgical units.

An informed staff at our booth welcomes the opportunity to discuss our products and their latest developments with you.

Carroll Dunham Smith Pharmacal Co., New Brunswick, N. J. Booth R-22

Our representatives desire to discuss the clinical experiences during the last twelve months relative to the use of LIPOTRIAD capsules and liquid in the treatment of senile macular degeneration and other retinopathies. LIPOTRIAD provides generous amounts of lipotropic agents and the oxytropic principles of B-complex vitamins.

Chicago Reference Book Co., Chicago
Booth R-2

Clersite Company, Chicago **Booth A**

The Coca-Cola Company, Atlanta
Booth 26

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Co., of Chicago, Inc., and the Coca-Cola Company.

Codman & Shurtleff, Inc., Boston
Booths R-41 and R-42

Codman and Shurtleff, Inc., makers of fine surgeon's instruments since 1838, will exhibit their line of fine eye instruments, including the Beaver eye knives with detachable blades and a complete line of instruments for bronchoesophagology, together with accessory items.

The ear, nose and throat field will be represented by many standard and new items.

Contact Lens Society of America, Buffalo, N. Y. **Booth R-28**

The Contact Lens Society of America, now in its third year, will display a map showing the location of its members. There will be an exhibit of various types of contact lenses, including the latest developments and literature describing them. Our members in the booth will be ready to give information and answer questions about the Society and its members.

Continental Optical Company, Indianapolis **Booth R-15**

A new Academy exhibitor this year is the Continental Optical Company, the originators of Ultex one-piece multifocal lenses.

The Continental display will feature special lenses suggested for subnormal vision, in addition to the company's exclusive modern eyewear creations, Kurova single vision and Ultex and Kurova F bifocal and trifocal lenses.

Coreco Research Corporation, New York
Booth 61

The Coret Camera embodies the principle of electronic flash and constant automatic control of such factors as distance, aperture, field, and exposure. Now, for the first time, Coreco offers a completely automatic professional clinical camera purposely designed to achieve the ultimate in surface, intraoral, and intratubular photography. Because of the simplicity of operation, even an inexperienced doctor or nurse can consistently achieve perfect color transparencies.

Curry & Paxton, Inc., New York
Booths R-44, R-45, R-46

Shown for the first time in America are latest additions to the CURPAX line, including the improved Vanderbilt Projection Perimeter, Synoptiscope, Trial Cases and Pupilometer.

Also, the Major Synoptophore with flashing attachment and the Illuminated Lancaster-Hess Screen. The CURPAX Home Training Cheiroscope, Stereoscope and other Orthoptic training aids.

Joseph K. Dennis Company, Inc., Chicago —AAOO Group Insurance Administrators **Booth 51**

Representatives of the Insurance Administration Office will be available to counsel with any member seeking information relative to the various AAOO insurance programs, Accident and Health, Malpractice, Accidental Death, Dismemberment and Loss of Sight, and Polio. All members are cordially invited to stop and spend a few minutes with us, and we will be glad to discuss any questions that have arisen.

The DeVilbiss Company, Somerset, Pa.
Booth 16

The DeVilbiss Company of Somerset, Pennsylvania, welcomes you to its exhibit. The complete DeVilbiss Line of Professional and Prescription types of Atomizers, Vaporizers and Nebulizers will be displayed.

The No. 841 Continuous-Flow Nebulizer, when used with the No. 501 Portable Air Compressor, has become the selected

equipment for prolonged mucolytic aerosol therapy. The No. 501 Portable Compressor, weighing 8 pounds, 10 ounces, is particularly suitable for individual treatment rooms.

The de luxe No. 143 Steam Vaporizer, operating from 12 to 14 hours, and No. 145 Vaporizer, operating from 8 to 10 hours, will also be exhibited.

Doho Chemical Corporation, New York
Booth 34

Doho Chemical Corporation is pleased to exhibit AURALGAN, the ear medication for the relief of pain in otitis media and removal of cerumen; OTOSMOSAN, the effective, nontoxic ear medication which is fungicidal and bactericidal (Gram negative-Gram positive) in suppuration and aural dermatomycoses; RHINALGAN, the nasal decongestant which is free from systemic or circulatory effect and equally safe to use on infants and elderly people; and the NEW LARYLGAN, the soothing throat spray and gargle for infectious and noninfectious sore throat involvements.

Mallon Chemical Corporation, a subsidiary of the Doho Chemical Corporation, will exhibit RECTALGAN, the liquid topical anesthesia recommended for relief of pain and discomfiture in hemorrhoids, pruritis and perineal suturing; and DERMOPLAST, in an aerosol freon propellent spray for fast relief of surface pain, itching, burns and abrasions.

Encyclopaedia Britannica, Chicago
Booth 47

ENCYCLOPAEDIA BRITANNICA PROUDLY announces the release of a BRAND NEW EDITION. Thirteen years of intensive editorial effort, representing an investment of more than FIVE MILLION DOLLARS, is reflected in this new edition.

You are cordially invited to inspect the FINEST BRITANNICA ever published and to avail yourselves of the most sensational offer savings-wise ever made.

Ethicon, Inc., Somerville, N. J.
Booth 64

ETHICON Ophthalmic Sutures with MICRO-POINT Needles, unsurpassed in sharpness and polish and in smoothness of passage through tissue. The reverse cutting edge guarantees increased strength, and it is more stable in the needle holder. These needles meet the rigid requirements of the ophthalmologist. Also shown will be BIO-SORB Dusting Powder, GAMOPHEN Surgical Soap and emergency suture assortments.

Grason-Stadler Company, West Concord, Mass. **Booth R-36**

The Audiometer Division of the Grason-Stadler Company will exhibit and demonstrate an automatic audiometer based on developments by Bekesy. Physicians are cordially invited to visit our booth and trace their own audiograms on the instrument. Competent technical personnel will be in attendance to discuss some of the unique features of automatic audiometry.

Other instruments on exhibit will include a Psychogalvanometer, a device used for audiometry on uncooperative subjects.

A new Push-Button Hearing Evaluator of the latest design will also be shown.

Grieshaber Swiss Eye Instruments, Chicago **Booth 38**

For those who appreciate the finest in Ophthalmic Instruments we will display exclusive GRIESHABER patterns of EYE KNIVES, CORNEAL SUTURE NEEDLES, TREPHINES, and extremely delicate FORCEPS and NEEDLE HOLDERS.

Well known for their superlative cutting qualities, GRIESHABER EYE INSTRUMENTS and CORNEAL NEEDLES are made of a very special stainless steel, which holds the original keen cutting edge.

With proper care, GRIESHABER INSTRUMENTS always prove to be a most economical investment.

We urge those who are not familiar with our instruments to purchase a trial order; the use of these instruments will enhance the operative technique, and the extreme sharpness and superior stainless qualities promote faster healing.

We take this opportunity to thank our many friends of the American Academy of Ophthalmology and Otolaryngology

for their loyal support throughout the years and to extend our invitation to all members to visit our display.

Grune & Stratton, Inc., New York
Booth 35

Mr. Frank Kurzer welcomes you to our booth, where you can examine such new books as Gettes' PRACTICAL REFRACTION; Guibor's SQUINT AND ALLIED CONDITIONS; the second revised edition of Kestenbaum's CLINICAL METHODS OF NEURO-OPHTHALMOLOGIC EXAMINATION; the second revised edition of Fox's OPHTHALMIC PLASTIC SURGERY; and Michal-Smith's MANAGEMENT OF THE HANDICAPPED CHILD. Many other recent books of special interest to Academy members and guests will be on display.

Guardian Chemical Corporation, Long Island City, N. Y. Booth R-19

The exhibit will consist of a display of CLORPACTIN WCS-90 for topical antisepsis, and of WAREXIN for cold sterilization. Literature describing these products and their application to the fields of ophthalmology and otolaryngology will be available.

Guild of Prescription Opticians of America, Inc. Booth 41

Adjustment of glasses and minor repairs will be continuously available at this booth for the convenience of Academy members and guests who may need this service. Guild materials in support of medical eye care will be on display.

Harlequin Corporation, New York
Booth 6

Harlequin Corporation will present latest fashion eyewear featuring new seasonal colors and designs created to tie in with latest fashion trends.

Paul B. Hoeber, Inc., N. Y. Booth 32

New Hoeber-Harper books of particular interest to members of the Academy include the new Second Edition of Sugar's THE GLAUCOMAS; Hollinshead's SURGICAL ANATOMY OF THE HEAD AND NECK; and Ellis' MODERN TRENDS IN DISEASES OF THE EAR, NOSE, AND THROAT. Those who do not yet have both volumes of the famous Berliner's BIOMICROSCOPY OF THE EYE may look them over at the meeting. This valuable set, with its remarkable collection of color plates, should be a permanent part of every ophthalmologist's reference shelf. All Hoeber-Harper books in print will be on display, and you are invited to browse at your leisure.

Hollister-Stier Laboratories, Los Angeles
Booth 46

When you visit the HOLLISTER-STIER exhibit, please ask that the permanent reference folios be sent to your office. Each folio on Pollen, Dust, and General Allergy contains valuable and practical forms to assist you in the management of your allergic patient.

Qualified personnel will be present to discuss with you the diagnostic and therapeutic application of our antigens.

Bacterials—Insects—Mold antigens as well as hundreds of pollens, foods, and epidermals are available for immediate use.

When Allergy is your problem, let HOLLISTER-STIER be your laboratory.

The House of Vision, Inc., Chicago
Booths 65 through 68

The House of Vision has developed several new ophthalmic instruments. Functionally designed to fill needed gaps in the ophthalmic field, they should make your office more comfortable and efficient. All are prefixed with the name VISIONAIRE. The following will be displayed: Visionaire Refraction Cabinet; Visionaire Remote Control Projector; Visionaire Tangent Screen; Visionaire Illuminated Gonioscopy Microscope.

Complete line of HAAG-STREIT precision instruments — Goldmann Slit Lamp; Goldmann Perimeter; Goldmann-Weekers Adaptometer; Pflueger Perimeter; Aplanation Tonometer.

ZEISS equipment — Zeiss-Oberkochen Slit Lamp; Zeiss Refractionometer; Zeiss Fundus Camera.

We will exhibit other unique instruments and the latest in technical optics and frame styling.

Hudson Optical Corporation, Long Island City, N. Y. Booth 116

The Hudson exhibit will include the new Kingsley frame for men, a frame that Hudson has designed with every possible feature for comfort, fit and style, including a new, more effective design for fitting the nose and preventing slipping.

The company's new CQS temples, designed to fit all makes of 5-barrel and 7-barrel frames, will be shown, together with the latest model, the 6J CQS Jeweled. This temple is available with either plastic tip or regular end. This more glamorous version of the CQS is brilliantly decorated with imported hand-set stones and is "one of the most striking fashion styling achievements in the company's history." It will enhance the beauty of practically any frame made today. It is offered in gold, silver, ebony, mocha, and dusk colors.

Industrial Acoustics Company, Inc., New York Booth R-37

The Industrial Acoustics Company will exhibit an I.A.C. Standard Model "400" Audiometric Testing Room. The Series "400" was designed for clinical, industrial and armed services audiometry, and these are the most widely used rooms in the country today. The features which make these rooms unique in their field will be displayed.

We will also have available our recently published brochure entitled "Audiometric Testing Rooms for the Medical Profession," which contains complete technical data on our Series "200," "400," "400-CT" and "1200" Rooms, the most complete line of Audiometric Testing Rooms available in the country today.

We would be pleased to have you stop in at our booth to discuss any questions you may have with regard to I.A.C. Rooms.

Ion Optical Company, Detroit Booths R-11 and R-12

The Iso-Sol Company, Inc., Brooklyn Booth R-43

The Iso-Sol Company, pioneers in sterile ophthalmic medications, will display its extensive line of Dropperettes, 1 cc. disposable units of surgical quality solutions developed for use in the operating room. The most extensive line of ophthalmic medications packaged in Lacrivials, improved leakproof plastic dropper bottles, will also be shown, as well as an improved polyethylene irrigating bottle containing a sterile isotonic low-surface-tension buffer solution. Samples and literature will be available.

Fritz Jardon Prosthetic Laboratories, Detroit Booth R-6

The exhibit will demonstrate a good Artificial-Eye-fitting program for those men who practice in those parts of the country where eye-fitting for their patients is not available.

Pressure conformers designed and developed by the Jardon Laboratories, which won acclaim from the leading eye surgeons here and abroad for their use in reconstructing eyesockets, will be exhibited.

A variety of implants, tried and tested, with excellent end-results; contact lenses of the latest design; eye instruments designed and manufactured by one of the best instrument makers from Stuttgart, Germany, will also be shown.

Jenkel-Davidson Optical Company, San Francisco Booths 105 and 107

You are invited to inspect specialized equipment and accessories designed and manufactured by Jenkel-Davidson Optical Company. The exhibit will include the latest model of the Clinicamera, the Multiple Pattern Screener, Trial Lens Cabinet, Selectachart, Electrajust, and other convenient accessories for the ophthalmologist.

Keeler Optical Products, Inc., Philadelphia Booths 92 and 93A

KEELER L.V.A. SCHEME for Helping the Partially Sighted

Demonstrations of technique and equipment for the three sections of this

new, scientific and comprehensive approach: (1) assessment of magnification, (2) practical verification, (3) **rapid and accurate** dispensing from standardized interchangeable component sets.

KEELER MAGNIFYING SPECTACLES —Extended range

Model designed for a working-distance of 14.5 inches provides superb definition farther from work than hitherto.

Infinity telescopes, ideal for leisure use, may be rapidly substituted for surgeon's operating telescopes.

MODIFIED PANTOSCOPE

Provides same powerful 12-watt light as regular Pantoscope, but for direct and indirect ophthalmoscopy only. Polarized or ordinary light. Other adjustments have been eliminated.

Many other well-established instruments will also be shown.

Keystone View Company, Meadville, Pa. Booths 23 and 24

A complete line of orthoptic testing and training equipment will be on display. The color-depth strabismus technique will be demonstrated. Of special interest to doctors who teach or lecture will be the Keystone Overhead Teaching Projector. The Keystone Prescription Units for fusion training, including the new Adult Eye Comfort Unit, will also be displayed.

Kono Manufacturing Co., Woodside, L. I., N. Y. Booth 108

The Kono exhibit will feature many new colors and models and also will establish models in new colors and treatments.

The display is built around Kono's PS of Progressive Styling program—the correctly paced introduction of styles and colors, after careful consumer research and investigation of style and color trends, so that the Knooptics offered are always current for good taste and style sense.

Also there will be exhibited many new frames built for special medical cases.

Lea & Febiger, Philadelphia Booth 53

Be sure to see these 1957 releases and other recent books: MacNeal, Alpers and O'Brien—MANAGEMENT OF THE PATIENT WITH HEADACHE; Cushman—STRABISMUS; Ballenger and Ballenger—DISEASES OF THE NOSE, THROAT AND EAR; Town—OPHTHALMOLOGY; Krimsky—BINOCULAR IMBALANCE; Ballenger and Ballenger—A MANUAL OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY; Spaeth—OPHTHALMIC SURGERY; Cowan—REFRACTION OF THE EYE; Gifford—OCULAR THERAPEUTICS; Wohl and Goodhart—MODERN NUTRITION IN HEALTH AND DISEASE; Bonica—THE MANAGEMENT OF PAIN. These and many titles in related fields have been selected because of their interest to members of the American Academy of Ophthalmology and Otolaryngology.

Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y. Booth R-10

You are cordially invited to visit the Lederle Booth, where our Medical Representatives will be in attendance to provide the latest information and literature available on our line. Featured will be Achromycin V, Kynex, and many other of our dependable quality products.

Liberty Optical Manufacturing Co., Newark, N. J. Booth 90A

Sporting a brand-new, color-packed exhibit and a host of new frame products, Liberty Optical Manufacturing Company plans to show Liberty's new all-zyl heavyweight for women—the ultra smart MATINEE! According to Mr. Joseph G. Bianco, General Manager, Liberty will also feature the popular LIBBY frame in new 'Tinsel' colors.

Those who visit the Liberty booth will also see the vast array of men's frames in the popular BROKER 215 series.

Even the small-fry will be given special consideration with a display of junior frames for young girls and boys. Particular emphasis will be given the sensational new little girls' frame—JR. MISS LIBBY in DOTTY COLORS.

J. B. Lippincott Company, Philadelphia
Booth 49

J. B. Lippincott Company presents, for your approval, a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

Mager & Gougelman, Inc., Chicago
Booths 20 and half of 19

Mager & Gougelman, Inc., offers a complete service in artificial eyes and facial restorations. Our skilled makers of glass and plastic eyes are heirs to our 106 years of experience. We have offices in many principal cities, and we visit other localities regularly for the fitting of artificial eyes.

We provide extensive mail order service for doctors who must do their own fittings. FREE COLOR CHART AND SIZE GUIDE is available at our booth, where you are invited to see our implants, conformers, artificial eyes, anatomical eye models, and facial restorations.

We shall welcome the opportunity of discussing with you any problems you may have regarding ocular prostheses.

The Maico Company, Inc., Minneapolis
Booths 69 and 70

The Maico exhibit this year will feature the Automatic Audiometer in operation. Drop by to have your hearing tested in the special audiometer test room. Auraseal ear defenders and the brand new POCKET AUDIOMETER will also be on display. And you are always welcome to discuss any audiometric problems with your old friends at the same old Maico stand.

S. E. Massengill Company, Bristol, Tenn.
Booth R-8

Welcome to the members of the American Academy of Ophthalmology and Otolaryngology! MASSENGILL hopes your meeting will be both informative and enjoyable. If it does nothing more than give you a chance to relax away from "the office," then it will be worth while. Your MASSENGILL representatives will be pleased, at your request, to discuss any products of special interest to you. Some of the products being displayed are THALFED (a superior antiasthmatic), RENIR (the improved reserpine with safety factor), ADRENOSEM (the systemic hemostat of choice), OBEDRIN (amphetamine-barbiturate).

McLeod Optical Co., Providence, R. I.
Booth R-48

McLEOD OPTICAL COMPANY will feature the I-Gard Hyperocular Spectacle magnifier lenses with aspheric surfaces, and the complete line of I-Gard lenses and magnifiers.

The booth will be the same one as used in past years. Norman A. MacLeod, Senior and Junior, and Edwin A. McLeod, Jr., will be in attendance.

Medical Case History Bureau, New York
Booth 115

Simplifying the Doctor's History Record and Bookkeeping System with the INFO-DEX RECORD CONTROL SYSTEM.

Maintenance of accurate, informative data on both history and financial records is essential in the modern doctor's practice. The INFO-DEX Record Control System helps to keep a constant finger on the physical and financial status of the patient. This system correlates information almost automatically for instant reference and research work. The method of cross-indexing interesting cases according to the disease is unique and exclusive.

The MEDICAL CASE HISTORY BUREAU of New York City has specialized for many years in record forms for the doctor's office. Its well-informed representative will gladly demonstrate the Info-Dex System and discuss your office problems.

Medical Dental Photo Co., Levittown, New York **Booth 121**

Featuring a complete line of the latest in photographic equipment, including a very inexpensive set-up for close-up work.

Also showing close-up stereo pictures done with a rather simple piece of equipment. We will exhibit again this year the sensational French Retinal Camera made by the Optiques Precision Co. (O.P.L.) of France.

Medical Film Guild, Ltd., New York
Booth L-L

Attending the 18th Academy Convention since 1940, Medical Film Guild has pioneered in the production and distribution of films for the medical profession. The Guild averages close to 1,000 exhibitions of ophthalmological and otorhino-laryngological films per year, with a specialized audience of over 30,000 doctors, students and nurses. Total Guild professional audiences in all specializations number 100,000 per year.

This ever-increasing volume of film showings forced the Guild to develop a novel technique for distributing medical films—the popular "Medical Film-Of-The-Month" program, in which participating medical societies, hospitals and schools are provided with one or more Guild-produced and Guild-distributed films monthly.

Each past Academy Convention has witnessed a new Guild film, technique or educational idea for the profession. This year is no exception. Among the Guild exhibits are:

—plans for a new, definitive film on rhinology;

—a "Film-Of-The-Month" in Otology, now available; an "Ophthalmological Film-Of-The-Month," in formulation; similar endeavors in rhinology and laryngology under consideration;

—a newly created "Film-Of-The-Month" for general audiences, a series designed to aid the doctor invited to speak before community groups;

—two new films;

(for professional or general showing) "The Wisconsin Cleft Palate Story," describing how laryngologists and their colleagues use teamwork to correct a tragedy of birth afflicting one child in every 770 born throughout the nation;

(for general showing) "The Helen Keller Story," winner of the Academy Award as Best Documentary of the Year, this biography of one of the greatest women of our time is an inspiration for the deaf, the blind and the mute, and those engaged in their rehabilitation;

—and an ingenious new photographic technique which enables doctors to produce their own lantern slides, ready for projection on the screen, in less than two minutes.

Doctors are invited to visit the Guild exhibition to arrange screenings of films covering aspects of ophthalmology, otology and laryngology. These include such titles as "Ocular Bacteriology," "Ocular Biomicroscopy," "Ocular Perimetry," "Anatomy of the Ear," "Clinic on Deafness," and "Treatment of Deafness by Prosthesis."

Merck Sharp & Dohme (Division of Merck & Co., Inc.) Philadelphia
Booth 45

The Merck Sharp & Dohme exhibit highlights steroid therapy featuring the new adrenal cortical steroid preparations: MEPROLONE, HYDELTRA-T.B.A., and NEO-HYDELTRASOL.

New antibacterial agents of clinical significance are also featured.

Technically trained personnel will be present to discuss these and other subjects of clinical interest with you.

E. B. Meyrowitz Surgical Instruments Co., Inc., New York
Booths 81 and 82

Miller Surgical Company, Chicago
Booth 89

See the Miller Electro-Scalpel and other electrosurgical units with Snares, Suction-Coagulation attachments, and other special accessories for eye, ear, nose and throat procedures. These cutting, coagulating and desiccating units, with or without spark gap, are calibrated to do the most delicate work as well as light major surgery of the eye, ear, nose and throat. There will also be on display illuminated otoscopes, eyespud with magnet, ophthalmoscope, transilluminating lamps, Lempert-type Headlite, and other specialties.

Modern Optics, Inc., Houston, Texas
Booths 118 and 119

Modern Optics will demonstrate that

it takes just five seconds to make a really critical inspection that will detect surface aberrations on a lens.

Also, it will be demonstrated that there is no such thing as an all-purpose pair of lenses, but that for the general-wear pair, Modern Optics offers its new Mono-centric Seg 3-Way lens.

Finally, Modern Optics will demonstrate that automation can now take the first step in the process of refraction.

The C. V. Mosby Company, St. Louis
Booth 88

Included in the Mosby Exhibit will be Allen STRABISMUS SYMPOSIUM II, Clark SYMPOSIUM ON GLAUCOMA, Harrington THE VISUAL FIELDS, Traquair INTRODUCTION TO CLINICAL PERIMETRY, Haik DISEASES AND SURGERY OF THE LENS. Some advance information concerning Volume I of Duke-Elder SYSTEM OF OPHTHALMOLOGY is also expected to be available.

V. Mueller & Company, Chicago
Booths 1 through 5

V. Mueller & Company will feature a broad selection of instruments for both stapes mobilization and fenestration procedures, in addition to the usual comprehensive display of fine instruments—both standard and special—for surgery of the eye, ear, nose and throat. The latest Shambaugh-Zeiss microscope will be demonstrated, as will other Mueller equipment.

Mueller Welt Contact Lenses, Inc., Chicago **Booths R-39 and R-40**

The success of our new micro lens (corneal-fluidless contact lens) in cases of aphakia has been so outstanding as to be worth your investigation. Success (over 85 per cent) means all-day wearing time in comfort.

The micro lens is simple to fit and easy to wear. The micro lens is receiving very wide acceptance by ophthalmologists. It is estimated that over one million pairs have been dispensed in this country these past four years.

Daily demonstrations will be given in our double booth. Reserve your seat for the demonstration to be sure you won't miss it.

Nepera Chemical Co., Inc., Yonkers, N. Y. **Booth R-5**

The Nepera exhibit features BIOMYDRIN OPHTHALMIC, the latest addition to the Biomydrin family. It contains two antibiotics for broad antibacterial effects plus an antihistaminic for the control of allergy in ocular infections. This unique combination has been effective both in acute and chronic ocular infections and in allergies. Biomydrin Ophthalmic is available in a unique dropamatic bottle. Methyl cellulose has been added to assure prolonged contact.

Also featured will be BIOMYDRIN NASAL SPRAY, for effective mucolytic-penetrating antibacterial activity, prolonged nasal decongestion and antiallergic effect. BIOMYDRIN F adds Hydrocortisone Alcohol to the Biomydrin Nasal solution formula; it is anti-inflammatory, antiallergic, mucolytic-penetrating, antibacterial, and decongestant. BIOMYDRIN OTIC is effective in the treatment of both otitis media and otitis externa; it is antibacterial, antiallergic, anti-inflammatory and penetrating.

New Era Optical Company, Chicago
Booths R-3 and R-4

Obrig Laboratories, Inc., New York
Booth 110

The Obrig Laboratories will display the new, improved corneal-type micro lens, Concentra. Also on display will be the Lacrilens and diagnostic lenses. A new and valuable textbook on the fitting of all types of contact lenses, which has been published since last year's meeting, will be on display. Also, there will be available many new folders and pamphlets, as well as slide rules, supplies and accessories.

Omega Instrument Co., New York
Booth R-32

Omega Instrument Company is representing the well-known firm of Rodenstock, German manufacturers of ophthalmic and optical equipment for over 80 years. We will exhibit the most modernly designed electric chair units, a new Vertexmeter, the well known Refractometer, Corrected-curve Trial Lens Sets and

several other items needed every day by ophthalmologists. Every ophthalmologist attending the Academy Meeting will find a visit to this exhibit very worth while.

Ophthalmos, Inc., Union City, N. J.
Booth R-13

You are cordially invited to visit our exhibit, where the introduction of Epinephrine Bitartrate two per cent, a new OPHTHALMOS solution of growing interest to ophthalmologists for glaucoma treatment, is scheduled.

ALMOCARPINE, the OPHTHALMOS brand of Pilocarpine solutions, will also be shown. ALMOCARPINE does not cause irritations, and is formulated without wetting agents which might cause allergies, and without vasoconstrictors which interfere with drug action and only mask the irritant effects of improperly buffered solutions. Mr. Robert R. Feinstein, our director of research, will be in attendance to discuss with you the special values of OPHTHALMOS pure ALMOCARPINE solutions in glaucoma therapy.

The FLUORISTRIP and OPHTHALMOS solutions available for surgery in the STERIDROPPA and in dropper sealed bottles for office and prescription use will be on display.

The new Schiotz tonometer scale on a permanent reference card, suitable for wall attachment, will be available to registrants at our booth. Ask for your copy.

The Opticase Company, Newark, N. J.
Booth 15

The Opticase Company will exhibit several new items which have recently been introduced. Specifically, they include the new Twindarella, which is a high-quality, high-fashion case for two pairs of glasses; Petit Pleat, which is an inexpensive novelty number; Thistle, which is an attractive two-color embossing design on standard styles of cases. We also expect to have one or two new items which have not been previously exhibited elsewhere.

Paravox, Inc., Cleveland **Booth R-29**

The Paravox display will feature the latest head-worn, all-transistor hearing aids.

The newest subminiature aids, which can be attached to any standard eyeglass frame, will be demonstrated together with the behind-the-ear and other head-worn models.

Pfizer Laboratories, Brooklyn
Booth 109

The Pfizer exhibit spotlights its recent and original therapeutic concepts, represented by SIGNEMYCIN (brand of oleandomycin), a combination of Matromycin and Tetracyn; and the newest advance in topical corticosteroid therapy, MAGNACORT and NEO-MAGNACORT, the first water soluble corticoid. Also featured are MODERIL, Pfizer's new alkaloid of rauwolfia; ATARAXOID, the first and only ataraxic corticoid, and BONAMINE and STERANE.

George P. Pilling & Son Company, Philadelphia **Booths 77, 78, 79**

This year's exhibit will be interesting, as it will feature many new items that will appeal to Bronchoesophagologists. There will be on exhibit a rather complete display of Fotobronchoscopic equipment, which will warrant the inspection of all interested in that field. There will also be numerous optical units useful in Bronchoscopy, Esophagology and Laryngology. The new line of Chevalier L. Jackson endoscopic instruments will also be on display. In addition, there will be a display of a complete line for the Otolaryngologist and Ophthalmologist. The Pilling personnel in attendance look forward to assisting you in your requirements.

Plastic Contact Lens Company, Chicago
Booth R-1

The Plastic Contact Lens Company will feature an accelerated capsule demonstration of all Wesley-Jessen contact lenses, emphasizing the recently developed Sphercon contact lens. Also on display will be a complete line of scleral and corneal cosmetic lenses, tinted lenses, and equipment incident to contact lens prescribing.

Alfred P. Poll, New York **Booth R-27**

The firm of Alfred P. Poll, a United

States representative of the Swiss firm of Haag-Streit, will feature the unique Goldmann Slit Lamp together with the new Goldmann Aplanation Tonometer. We will also display a new model of the Kestenbaum Optokinetic Nystagmus Drum. Mr. Poll will be in attendance to demonstrate the newest equipment manufactured by Rodenstock of Germany.

Precision-Cosmet Company, Inc., Minneapolis Booth R-30

Featured will be: Contact lenses—all types. Contact lens fitting sets. Allen implants and plastic eyes. Instruments and related ophthalmic specialties. Hardening Unit and Inspectoscope. Take-Off Chiller.

W. F. Prior Company, Inc., Hagerstown, Md. Booth 106

A UINQUE AND INDISPENSABLE SERVICE FOR THE OTOLARYNGOLOGIST

In addition to the LOOSE-LEAF OTOLARYNGOLOGY and the vast number of new and revised chapters that have already been published for these volumes, you will see on display the unique OTOLARYNGOLOGY RESEARCH SERVICE. The actual requests from subscribers, the response by way of literature supplied, and the reactions of the individual subscribers will prove how valuable this service would be to you.

Gone are the days when it was necessary for the busy specialist to spend valuable time hunting for needed references. By merely mailing a request card, the literature completely answering your question is placed on your desk.

This service is vast in its comprehensiveness and negligible in its cost.

Professional Pharmacal Company, Inc., San Antonio, Texas Booth R-33

The Professional Pharmacal Company will display its complete line of Bufopto sterile ophthalmic solutions. These superb solutions will be featured in the NEW All-Plastic "Visual" package that permits inspection of the contents of the package at all times.

Our special representatives will be on hand to answer any questions concerning these products.

The Professional Press, Inc., Chicago Booth 52

The Eye, Ear, Nose and Throat Monthly is now in its thirty-sixth year of publication. It is a practical journal whose aim is to present material of interest and value to the ophthalmologist and otolaryngologist. Sample copies will be available. THE RED BOOK—the directory of eye, ear, nose and throat specialists—will also be on display.

Radium Chemical Company, Inc., New York Booth 30

Radium Chemical Company, Inc., will display the Monel metal radium nasopharyngeal applicator, used for the treatment of hyperplastic lymphoid tissue at the orifice of the eustachian tube and the fossa of Rosenmueller. A complete line of instruments for the application of radon will also be shown.

R. J. Reynolds Tobacco Company, Winston-Salem, N. C. Booths 27 and 28

Welcome to the R. J. Reynolds Tobacco Company Exhibit! You are cordially invited to receive a cigarette case (monogrammed with your initials) containing your choice of CAMEL, WINSTON Filter, Menthol Fresh SALEM, or CAVALIER King Size cigarettes.

Ritter Company, Inc., Rochester, New York Booths 71, 72, 73

Ritter Equipment enables the ear, nose and throat specialist to treat **more** patients **more** thoroughly with **less** effort in **less** time.

Featuring the ever popular Ritter Ear, Nose & Throat Treatment Unit, which places all of the essential electrical, vacuum and pressure treatment facilities instantly right at your finger tips.

The NEW Ritter Chair, providing greater patient comfort and a full 18 inch effortless elevation from extreme low to high position; also a special motor-elevated Chair-Table designed especially for eye, ear, nose and throat work.

Plan to spend some time at the Ritter exhibit, and let us explain the many benefits to be derived from a lifetime investment in efficient Ritter Equipment.

Sandoz Pharmaceuticals, Hanover, N. J.
Booth R-26

Sandoz Pharmaceuticals cordially invites you to visit our display.

BELLERGAL: Spacetabs which assure around-the-clock control of functional complaints (example—menopause symptoms) in the periphery where they originate. FIORINAL: A new approach to therapy of tension headaches and other head pain due to sinusitis and myalgia. CAFERGOT: Available in oral and rectal form for effective control of head pain in migraine and other vascular headaches.

Our representatives will gladly answer questions about these and other Sandoz products.

Schering Corporation, Bloomfield, N. J.
Booth 33

Schering products which achieve prompt effective control of inflammation, allergy and infection are featured. Well informed representatives will welcome an opportunity to make available to you current information on METIMYD, METRETON, METICORTEN and METICORTELONE, as well as additional data on CHLOR-TRIMETON and CORICIDIN products. We invite your comments and recommendations.

Schieffelin & Company, New York
Booth 50

Robert B. Scott, Inc., Chicago
Booth R-34

The Robert B. Scott exhibit will include (1) display showing appearance of patients before and after placement of ocular prostheses, cosmetic contact shells, and facial restorations; (2) display of retinal and anterior-segment slides from our collection.

Shuron Optical Company, Inc., Rochester, N. Y. **Booths 83 and 84**

In the Shuron exhibit will be shown the Company's new 1958 styles in eyewear—in colorful anodized aluminum, high-style gold-filled, and Shelltex—and newly designed cases in gator-grained vinyl and other modern materials. Widesite corrected-curve single-vision lenses and multifocals—with straight-top and curved-top segments—will be featured.

Sonotone Corporation, Elmsford, N. Y.
Booth 80

This exhibit will feature a completely new line of Sonotone audiometers, including models for the doctor's office, clinics, industry, and schools. Despite their combination of uncompromising accuracy and dependability, all models are offered at unparalleled low prices. Also shown will be the newest in Sonotone hearing aids, including the latest in the "all-in-the-ear" and other subminiature types.

E. R. Squibb & Sons, New York
Booth R-38

E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research on new products or improvements on products already marketed are available to the medical profession.

We are pleased to present up-to-date information on these advances for your consideration.

Storck Pharmaceuticals, St. Louis
Booth 117

COTAPHEN: Combines nicotinic acid with mephenesin for effective therapy in treating myalgia of the head—a new product in capsule form.

PENTERGOT: "Our old standby" for treating migraine and tension headaches —in rectal inserts and oral tablets.

METALEX: An elixir of pentylenetetrazol and nicotinic acid to increase cerebral function, thereby improving visual acuity from 20-80 to 20-30 in as short a period as three weeks.

Storz Instrument Company, St. Louis
Booths 111 through 114

Featured in the Storz display will be a complete selection of fine surgical instruments for the eye and ear, nose and

throat, bronchoscopic and nasal plastic surgeons. All new instruments developed during 1957 will be featured. Of particular interest to the otologist will be the sets of instruments for stapes mobilization and tympanoplasty, of both American and European designs. In addition to surgical instruments, several items of equipment including an explosion-proof giant eye magnet, a new sterilizable ophthalmic operating light, and an operating microscope of high magnification for ophthalmic and endaural surgery, complete with photographic equipment, will be displayed and demonstrated.

Surgical Mechanical Research, Inc., Los Angeles Booths 90B and 91

An efficiently arranged office which is convenient in arrangement, economical in use of available space, and reasonable in cost, and which maintains its appearance of newness over the years will be on display.

Also shown will be the SMR EAR STOPPER, which is used in industry to prevent acoustic trauma. Literature will be furnished on request.

A new Eye Cabinet will be shown, complete with retractable electric cords for the ophthalmoscope and retinoscope, a warmer for eye solutions, facilities for illuminating the work area, and an additional bank of nine shallow drawers.

The Thermosector Company, Oak Park, Ill. Booth 31

The Thermosector, an electrosurgical unit expressly designed for eye, ear, nose and throat techniques in office and hospital, will be exhibited and demonstrated. You are invited to investigate the superior features of this device, which is preferred by leading hospitals, clinics and professional men.

Charles C Thomas, Publisher, Springfield, Ill. Booth R-49

Displayed among our new books in this field are: Senturia—DISEASES OF THE EXTERNAL EAR; Roberts—EAR, NOSE AND THROAT DYSFUNCTIONS DUE TO DEFICIENCIES AND IMBALANCES; Equen—MAGNETIC REMOVAL OF FOREIGN BODIES; Callahan—SURGERY OF THE EYE: DISEASES; Cogan—NEUROLOGY OF THE OCULAR MUSCLES (Second Edition); Keeney—LENS MATERIALS IN THE PREVENTION OF EYE INJURIES; Lowenfeld—OUR BLIND CHILDREN; Prince—COMPARATIVE ANATOMY OF THE EYE; Hansell—A SYSTEM OF OPHTHALMIC ILLUSTRATION; Schubert—THE DOCTOR EYES THE POOR READER, and many others.

Titmus Optical Company, Inc., Petersburg, Va. Booth 57

Uhlemann Optical Company, Chicago Booths 54, 55, 56

Distinctive Eye Wear styles, including many import designs—Ophthalmic equipment, large and small—Contact Lenses and general display.

The Univis Lens Company, Dayton, Ohio Booths 39 and 40

The Univis Lens Company will strongly emphasize its new identifiable bifocal, the I.S./22, and will also present new findings on the advantages of continuous-vision lenses.

The Univis Frame Division will highlight the new combination frame, the Gay Brow, calling special attention to new colors and fitting characteristics of this new product.

Victory Optical Mfg. Co., Newark, N. J. Booths 103 and 104

The exihibit of Victory Optical Mfg. Co. will feature the company's newest fashion frames. Some of these will be:

The New Honey—A new version of the history-making Honey with the same easy-to-wear comfort and precision fit.

Terry Deluxe—Smartly designed with beautifully hand-engraved metalglow plaques in contrasting colors.

Teddie—Solid and Clear Bridge, with Victory's exclusive "Insculpture" design on the temples. Also in the new Genie colors.

Atlas—A man's frame, inspired by the strength, vitality and striking modern

feeling of the famed Atlas in New York's Rockefeller Center.

Emissary—A new, modern man's frame designed with flawless taste.

The Vision-Ease Corporation, St. Cloud, Minn. Booth R-24

Vision-Ease will again display its various types of improved multifocals. Emphasis will be given to the fitting of aphakic lenses, particularly with respect to Catarex forms. Inasmuch as such strides have been made with Catarex lenses since their introduction in 1955, Vision-Ease feels that no one should overlook their tremendous possibilities.

Dr. Max M. von Stirne, Philadelphia Booth R-7

Dr. Max M. von Stirne, manufacturer and dispensator of eye instruments only, will exhibit instruments and sundries covering every possible requirement demanded by the discriminating ophthalmologist for his office or operating room.

The Stirne name is synonomous with service to the eye specialist.

Walton Laboratories, Inc., Irvington, N. J. Booth R-14

COLD STEAM®, its application in the treatment of upper respiratory ailments and, more important, its prophylactic use, will be discussed at the Walton Laboratories booth.

Exhibited and in operation will be Walton's complete line of Residential Portable Room and Furnace Type Humidifiers.

Trained technical personnel will be on hand to discuss all phases of humidification and its importance to the medical profession, to the individual, and to the hospital.

Ward Optical Mfg. Corp., North Arlington, N.J. Booth 93B

Frank J. Magher and Bill Kraft will be in attendance at the Ward booth to show Zyl Optical Frames of Distinction.

Welch Allyn, Inc., Skaneateles Falls, N. Y. Booth 17

Electrically illuminated, diagnostic instruments for the eye, ear, nose and throat doctor will be demonstrated at the Welch Allyn booth. A new wall transformer unit will be introduced. It is particularly adapted for use in the EENT field. It provides special convenience in using diagnostic instruments and at the same time gives maximum illumination of bulbs without reducing their longevity.

White Laboratories, Inc., Kenilworth, N. J. Booth R-31

The White Laboratories display will feature Otic Preparations, Otobiotic, Otodyne and Otomide:

Otobiotic—for broad antifungal activity in external and chronic middle ear infections.

Otodyne—for effective, analgesic, antipruritic action in otic conditions.

Otomide—for sulfa-susceptible middle and external ear infections.

Representatives in attendance will welcome the opportunity to discuss these preparations and other products of White's research, particularly Orabiotic, an INNOVATION in post-tonsillectomy care and an adjunct in the treatment of common mouth and throat infections.

The White-Haines Optical Co., Columbus, Ohio Booths 21 and 22

The Williams & Wilkins Company, Baltimore Booth 36

Williams & Wilkins books to be exhibited at the Annual Meeting of the American Academy of Ophthalmology and Otolaryngology will include Walsh: CLINICAL NEURO-OPHTHALMOLOGY, 2nd ed. (1957); Gorin and Posner: MANUAL OF SLIT LAMP GONIOSCOPY (1957); Schlaegel: PSYCHOSOMATIC OPHTHALMOLOGY (1957); and Proctor: ANESTHESIA AND OTOLARYNGOLOGY (1957).

Winthrop Laboratories, New York
Booth 25

New A. P. C. Demerol tablets for potentiated pain relief. Each tablet contains aspirin 3 grains, phenacetin 2.5 grains, caffeine 0.5 grain with Demerol hydrochloride 30 mg. A. P. C. Demerol tablets combine marked potentiation of analgesia with mild sedation and spasmolytic action. They do not cause constipation or interference with micturition.

NTZ Nasal Spray, a physiologically balanced formulation of Neo-Synephrine (decongestant), Thenfadil (antihistaminic), and Zephiran (antibacterial spreading agent) in convenient, unbreakable plastic squeeze bottles. Delivers fine even spray; leak proof.

Carl Zeiss, Inc., New York
Booths 74 and 75

Featured in our exhibit will be the new Carl Zeiss, Oberkochen, Fundus Camera with Electronic Flash. Also on display will be the well known Carl Zeiss, Oberkochen, Slit Lamps on instrument table and compound stage. In addition, the Anterior Chamber Depth Micrometer and accessories for photographing the anterior segment of the eye and for gonioscopic examinations will be shown.

The Carl Zeiss Operation Microscope and Otoscope with photo attachment will be on exhibit, as well as the Twin Lamp, Diagnostic Set, Hand Lamp, Vertex Refractionometer, and Laboratory Microscopes.

Zenith Radio Corporation, Chicago
Booth 94

The Hearing Aid Division of Zenith Radio Corporation will exhibit its complete line of highest quality, low-cost, all-transistor hearing aids. Zenith representatives will be on hand to demonstrate the instruments and answer questions, and to explain how any physician may test a Zenith hearing aid for thirty days at no cost or obligation.

Zylite Products Co., Inc., New York
Booth 48

Zylite Products Co., Inc. will exhibit their 1957-58 collection of the latest styles and trends in Frame Fashions. A feature of this collection will be a new frame for men which incorporates a "universal fit" bridge. Made in one bridge size only, the ingenious design of the bridge is such that it will fit 85 to 90 per cent of the male public.

Zylite believes this new design development will considerably perfect and simplify the task of fitting, and will set a new trend.

Zylo Ware Corporation, Long Island City, N. Y.
Booth 60

Zylo Ware Corporation presents the MR. BOB frame and the DOVE MATE Line.

The MR. BOB, a new shape for men, accents the natural look. It is a lightweight frame with a keyhole bridge that fits right because it sits right. MR. BOB is available in all the modern men's colors.

The DOVE MATE line will captivate the hearts of all the ladies. Made in solid colors as well as Clearbridge, mated with a neat touch of Mother-of-Pearl.

SECTION ON INSTRUCTION

SIXTY-SECOND ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

October 13-18, 1957

PALMER HOUSE

Chicago, Illinois

A. D. RUEDEMANN, M.D.
Secretary for Instruction — Ophthalmology

DEAN M. LIERLE, M.D.
Secretary for Instruction — Otolaryngology and Maxillofacial Surgery

The following condensed schedules of instruction courses are reprinted for the convenience of Fellows who have not yet placed orders for tickets.

Courses already sold out are so designated on the charts. Please do not request tickets for these courses.

For complete listing of course titles, instructors, and descriptive paragraphs about each subject, please refer to the March-April issue of the TRANSACTIONS.

General Instructions

Only members who have paid their 1957 *dues may order instruction tickets in advance of the meeting.* Members should order tickets only for their own use. Candidates for fellowship in the Academy are not privileged to reserve tickets in advance. After the session opens, no distinction between members, candidates and guests will be made in selling tickets.

Each period (1 hour) of instruction costs $2.00. *Orders unaccompanied by properly executed checks will not be filled.* Checks should be made payable to W. L. Benedict, M.D.

In case of inability to attend the meeting after order has been filled, a refund will be granted if requested prior to October 11.

If courses requested are not available and it is impossible to substitute, a refund will be granted. Refunds will not be sent by mail. A blue refund card will be placed in the Advance Registration Envelope which is received at the time of registration. This should be presented at the Instruction Desk for payment.

All orders for tickets will be filled according to postmark on envelope containing check. Telegrams will not be honored. Orders will not be accepted for presale after October 3. To ensure acceptance they should be mailed by September 30 to William L. Benedict, M.D., 15 Second Street S.W., Rochester, Minnesota.

Ordering Instruction Tickets

An *individual* course is complete in one (1) period. Most individual courses are repeated on two different days, allowing the subscriber to choose the day on which he wishes to attend.

A *continuous* course runs two (2) or more periods as indicated. It is not possible to purchase a ticket to only *part* of a continuous course.

At the end of this section is printed a colored sheet to be used when ordering tickets in advance. Specify preferences on this sheet and mail to the executive office. Careful attention to instructions will ensure the correct filling of your requests. *Since number of tickets for each course is limited, be sure to list second and third choices for each period in case first choice is already sold out. In every case, effort will be made to furnish first choices.*

If you are requesting registration in the continuous courses, please specify preferences for individual courses as substitutes in order to avoid disappointment should the continuous courses which you select be sold out when your order is received.

Acknowledgment of Advance Order

As soon as an advance order is filled, a postcard, listing the courses that have been reserved for him, will be mailed to the subscriber. Please do not ask to change courses after your order has been filled. The postcard is merely an assurance that your order has been filled; it is not necessary for registration at the Academy meeting.

Claiming Instruction Tickets

No tickets will be sent through the mails. Members who have ordered instruction course tickets will register at the *Advance Order Section* of the Registration Desk during the week of the Convention to secure registration badge, tickets, and all convention material.

Tickets will be on sale during the meeting at the Instruction Desk in the Registration Foyer.

KEY TO DESIGNATION OF PERIODS

The periods will be designated with the following key: Select tickets for — Otolaryngology, forenoons, periods 1-2-3 — Ophthalmology, afternoons, periods 4-5-6

Day	(M)onday	(T)uesday	(W)ednesday	(Th)ursday
Period a.m.		1 2 3	1 2 3	1 2 3
Period p.m.	4 5 6	4 5 6	4 5 6	4 5 6

M-4	2:00 p.m. to 3:00 p.m.	W-4	2:00 p.m. to 3:00 p.m.
M-5	3:15 p.m. to 4:15 p.m.	W-5	3:15 p.m. to 4:15 p.m.
M-6	4:30 p.m. to 5:30 p.m.	W-6	4:30 p.m. to 5:30 p.m.
T-1	9:00 a.m. to 10:00 a.m.	Th-1	9:00 a.m. to 10:00 a.m.
T-2	10:15 a.m. to 11:15 a.m.	Th-2	10:15 a.m. to 11:15 a.m.
T-3	11:30 a.m. to 12:30 p.m.	Th-3	11:30 a.m. to 12:30 p.m.
T-4	2:00 p.m. to 3:00 p.m.	Th-4	2:00 p.m. to 3:00 p.m.
T-5	3:15 p.m. to 4:15 p.m.	Th-5	3:15 p.m. to 4:15 p.m.
T-6	4:30 p.m. to 5:30 p.m.	Th-6	4:30 p.m. to 5:30 p.m.
W-1	9:00 a.m. to 10:00 a.m.		
W-2	10:15 a.m. to 11:15 a.m.		
W-3	11:30 a.m. to 12:30 p.m.		

(Familiarity with this key will be helpful and will avoid confusion)

CORRECTIONS

Because of the illness of Dr. Birenboim, Course 479 has been cancelled. Course 478 by Dr. Ogura will be offered on T-2 as well as on Th-2.

SECTION ON INSTRUCTION

ADVANCE ORDER SHEET

All courses cost $2.00 for each period (one hour). Follow instructions explicitly and check for errors in listing before mailing.

Orders will not be accepted for presale after October 3. To ensure acceptance they should be mailed before September 30 to

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
15 Second Street S.W., Rochester, Minnesota

Academy Candidates and Guests May Purchase Tickets Only at Instruction Desk in Registration Foyer

(Over)

ADVANCE ORDER SHEET

ORDERS FILLED ONLY IF CURRENT DUES ARE PAID

NO REFUNDS WILL BE MADE AFTER OCTOBER 11

(Type or Print) Last Name First Name Middle Initial

Office Address

City Zone State

Days to be Present

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday

Total Amount Enclosed $_____

SELECTION OF COURSES ON REVERSE SIDE OF THIS BLANK

RECAPITULATION OF GENERAL INSTRUCTIONS

1. Monday, Tuesday, Wednesday, and Thursday are represented by the letters M, T, W Th. The first period in the morning is represented by figure 1, second period by figure 2 and third period by figure 3. The first period in the afternoon is represented by figure 4, second period by figure 5, and third period by figure 6. All courses in oto-laryngology and maxillofacial surgery are presented in the mornings. All courses in ophthalmology are presented in the afternoons.

2. Reservation of instruction tickets in advance of the meeting will be made ONLY for MEMBERS whose 1957 dues have been paid. Academy candidates and guests may make selection of courses ONLY at the General Registration Desk in Chicago.

3. Make check payable to W. L. Benedict, M.D.

4. Mail order promptly to ensure reservation of first choices. If necessary, an attempt will be made to rearrange schedule to include "first choices."

(Over)

SELECTION OF COURSES

PERIOD	FIRST CHOICE		SECOND CHOICE		THIRD CHOICE	
	Course No.	Lecturer	Course No.	Lecturer	Course No.	Lecturer
MON. 4						
P.M. 5						
6						
TUES. 1						
A.M. 2						
3						
P.M. 4						
5						
6						
WED. 1						
A.M. 2						
3						
P.M. 4						
5						
6						
THURS. 1						
A.M. 2						
3						
P.M. 4						
5						
6						

The following are condensed schedules of courses previously described

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
1	Adler	Physiology of Vision	3 PERIODS M-4, T-4, W-4
2	Allen et al.	Bacteriology and Infectious Diseases	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
3	Ascher	Aqueous Veins in Glaucoma	2 PERIODS M-4, M-5
4	Ballintine & Johnson, L.	.....SOLD OUT.....	
5	Becker & Kinsey	Studies on Aqueous Flow	2 PERIODS T-5, T-6
6	Bedell	..... CANCELLED	
7	Berke	.....SOLD OUT.....	
8	Berliner	Recent Advances in Biomicroscopy	3 PERIODS M-6, T-6, W-6
9	Birge et al.	Vascular Diseases	2 PERIODS T-5, T-6
10	Boeder	Practical Optics	2 PERIODS M-5, M-6
11	Breinin	Electromyography	2 PERIODS W-5, W-6
12	Brockhurst	.....SOLD OUT.....	
13	Brown, H. et al.	Eye Muscles	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
14	Byrnes	Ophthalmic Filters	2 PERIODS W-5, W-6
15	Callahan et al.	Ophthalmic Plastic Surgery: Fundamental	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
16	Clark, G.	.....SOLD OUT.....	
17	Clark, W.	Surgery of Ocular Muscles	2 PERIODS M-4, M-5
18	Clark, W.	Cataract Extraction: Selection of Patient	2 PERIODS T-4, T-5
19 or 20	Copeland	Streak Retinoscopy	4 PERIODS M-4, M-5, T-4, T-5 or W-4, W-5, Th-4, Th-5
21	Costenbader et al.	Comitant Strabismus	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
22	Dunnington & Regan, E.	Cataract Surgery: Complications Due to Defective Wound Healing	2 PERIODS M-4, M-5
23	Fonda & Sloan	Subnormal Vision	2 PERIODS T-4, T-5
24	Guibor	Orthoptics: Office and Home Techniques	3 PERIODS M-4, T-4, W-4
25	Hollenhorst	Arterial Diseases	2 PERIODS M-4, M-5
26	Hughes et al.	Ophthalmic Plastic Surgery: Advanced	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
27	Knighton et al.	Highlights in Glaucoma	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
28	McLean et al.	.....SOLD OUT.....	
29	Pfeiffer & Jones, I.	Roentgenography of the Eye and Orbit	2 PERIODS M-4, M-5
30	Pischel et al.	Retinal Detachment	4 PERIODS M-5, M-6, T-5, T-6
31	Regan, J. & Regan, C.	Refraction: Practical Aspects & Aids in Difficult Problems	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
32	Rolett	.....SOLD OUT.....	
33	Romaine	Ocular Motility Surgery	4 PERIODS M-4, M-5, T-4, T-5
34	Romaine	Refraction Problems: Treatment	3 PERIODS M-6, T-6, W-6
35	Rucker	Neuro-ophthalmology	3 PERIODS M-6, T-6, W-6
36	Schimek & Bousquet	.....SOLD OUT.....	
37	Sloane	School Vision Testing	2 PERIODS M-4, M-5
38	Sloane	Telescopic Lenses	2 PERIODS T-4, T-5
39	Gettes	Prescription of Prisms; Drugs in Refraction	2 PERIODS W-4, W-5
40	Steffensen & Smith, R.	Corticotropin and Synthetic Steroids	2 PERIODS T-4, T-5
41	Stow & Moss	Diagnostic & Therapeutic Office Procedures	2 PERIODS M-5, M-6
42	Theobald et al.	Histopathology	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
43	Thorpe	Surgery of Intraocular Foreign Bodies	2 PERIODS M-4, M-5
44	Thorpe et al.	Slit Lamp Biomicroscopy: Fundamentals	9 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6
45	Thorpe et al.	.....SOLD OUT.....	
46	Thorpe et al.	.....SOLD OUT.....	
47	Townes	Cataract Surgery: Complications	2 PERIODS W-5, W-6
48	Troutman et al.	Recent Advances in Ophthalmology	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
49	Troutman	Enucleation Surgery	2 PERIODS T-4, T-5
50	Wheeler & Knapp	Concomitant Strabismus	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
51	Home Study		10 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6, Th-4

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Monday

Key M-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
101	Aldrich	Emotional Problems in the Ophthalmologist's Patients
102	Alfano	Angiography
104	Alvaro	Uveitis: Etiology and Treatment
108	Bannon	Aniseikonia: Its Role in Refractive Problems
111	Berens	Ophthalmic Surgery: New Procedures
112	Bettman	Radioactive Isotopes
116	Bonner	Vascular Retinopathy
123	Chamberlain	Vertical Motor Anomalies
126	Cholst	Central Fields
127	Cohoe	Special Reading Instructions for the Partially Seeing
135	Cutler	Cataract: Methods of Extraction
138	Davis	Sutures in Cataract Surgery
156	Gifford	Local Anesthesia
168	Hogan	Lesions of the Choroid
224	Payne	Extraction of Complicated Cataract
251	Tassman	Retinopathy in Diabetes

Key M-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
103	Allen, H.	Aseptic Technique
107	Baird	Lesions of the Orbit
130	Cordes	Eye Changes in Diabetes
131	Coston	Inflammatory and Degenerative Disease of the Retina
133	Cunningham	Types of Head Pain
137	Davidson	Surgical Instruments: Preparation and Care
141	Diskan	Visual Screening in Schools
154	Gemeroy	External Diseases
178	Katz	Ophthalmic Anatomy
197	Lloyd	Fundus Lesions of the Senile Eye
208	McDonald	Penetrating Wounds of the Eye
217	Myers	Vertical Phorias and Tropias

Key M-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
105	Alvis	Glaucoma Surgery
106	Amenabar	..... CANCELLED .....
109	Benedict	Atrophic Changes of the Iris
117	Brown, A.	Fever Therapy vs. Antibiotics and Corticosteroids
118	Calhoun	Epithelization of the Anterior Chamber
119	Carroll	Optic Nerve Lesions
125	Chandler	Cataract Surgery: Complications
136	Daily	Biomicroscopy of Vitreous and Fundus Oculi
139	Day	Medical Exophthalmos
140	DeVoe	Corneal Dystrophies
143	Dunlap	Divergence Anomalies
147	Ferrer	Contact Lenses
152	Gaines	Ophthalmologic Examination from Neuro-ophthalmologic Viewpoint
161	Hanno	Internal Medicine: Ophthalmic Problems
163	Harrington	Dynamics of Phacoerysis
170	Jacobson	Electroretinography
182	Kimura	Chronic Lesions of Anterior Segment
199	Long	Retinoblastoma and the Pseudoretinoblastomas
202	MacLean	Surgical Management of Cataracts
225	Perera	Retinal Detachment
229	Post	Refinements of Refraction
237	Rychener	The Lacrimal Apparatus
246	Solanes	Uveomeningitis Syndromes

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Tuesday

Key T-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
104	Alvaro	Uveitis: Etiology and Treatment
113	Bettman	Value of Goniotomy
121	Cassady	Toxoplasmic Retinochoroiditis
128	Cooper	Principles of Muscle Surgery
129	Cordes	Surgery of Congenital Cataracts
135	Cutler	Cataract: Methods of Extraction
142	Dixon	Indirect Ophthalmoscopy
149	Fralick	Surgical Anatomy in Operations for Glaucoma
150	Fread	Ideal Refraction Equipment
153	Gartner	Fundus Diseases
158	Gump	Recurrent Iridocyclitis
179	Kennedy	Practical Perimetry
188	Leinfelder	Perimetry & Use of Tangent Screen
224	Payne	Extraction of Complicated Cataract
226	Pino & Edwards	Problems in Bifocal Lenses
258	Whalman	Practical Points in Eye Surgery
260	Wood	Central Retinal Lesions

Key T-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
107	Baird	Lesions of the Orbit
124	Chamlin	Perimetry
145	Falls	Practical Application of Heredity
151	Fry	Lesions at Posterior Pole of Eye
155	Gibson	Retinopathy
157	Gipner	.....SOLD OUT.....
160	Haik	.....SOLD OUT.....
165	Hedges	Neuralgias of the Head
172	Jardon	Fitting Ocular Prostheses
175	Jones, L.	The Lacrimal Drainage System
193	Levy	Motion Picture Photography
207	Maumenee	Surgical Indications for Corneal Procedures
236	Ruedemann	Body Changes Due to Error in Vertical Muscles
255	Veirs	External Dacryocystorhinostomy

Key T-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
106	Amenabar	..... CANCELLED .....
110	Berens	Cyclodiathermy, Cycloelectrolysis, Iridencleisis & Cyclodialysis
118	Calhoun	Epithelization of the Anterior Chamber
136	Daily	Biomicroscopy of Vitreous and Fundus Oculi
143	Dunlap	Divergence Anomalies
148	Fink	Binocular Problems in Routine Refraction
167	Hill	.....SOLD OUT.....
171	Jampolsky	Ocular Divergence
173	Jobe	Practical Optics
176	Joy	Cerebral Angiography
180	Kestenbaum	Reading Aids for Low Vision
181	Keyes	Retinal Vascular Disease
184	Kornzweig	Practical Embryology
187	Leahey	Corneal Transplantation
194	Lewis	External Diseases
222	Osher	Diagnostic Approach to Squint Surgery
225	Perera	Retinal Detachment
237	Rychener	The Lacrimal Apparatus
239	Scheie	Surgery for Congenital Glaucoma
250	Swan	Value of Drugs in Glaucoma
254	Veasey	Refraction Difficulties
256	Weisser	Chronic Uveitis

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Wednesday

Key W-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
120	Cassady	Dacryocystitis and Lacrimal Drainage
134	Cusick	Ptosis
144	Egan	Cross Cylinder: Application and Theory
159	Haas	Congenital Glaucoma
162	Harley	Lesions of 3rd, 4th and 6th Cranial Nerves
166	Henderson	Chiasmal Area Lesions
186	Kronfeld	Choice of Surgical Procedure in Glaucoma
188	Leinfelder	Perimetry & Use of Tangent Screen
192	Lepard	Eye Diseases Common to Children
195	Linksz & Tait	Telescopic & Magnifying Lenses
203	Macnie	Head Trauma with Ocular Symptoms
204	Mangold	Proper Fitting of Glasses
215	Mullen	Ophthalmic Emergencies
227	Pino & Edwards	Correction of Aphakia
234	Roberts	Early Diagnosis of Glaucoma
238	Scarney	Slit Lamp Biomicroscopy
242	Simpson	Convergence Insufficiency and Divergence Excess
249	Stauffer	Allergic Conditions of the Eye
252	Theodore	Ocular Therapeutics
257	Wendland	Chiasmal Lesions
260	Wood	Central Retinal Lesions

Key W-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
146	Falls	Ocular Geriatrics
157	Gipner	Recent Advances in Ophthalmology
174	Johnson, C.	Ptosis
183	Klien	Clinical Pathology of the Retina
185	Kronenberg	Practical Ocular Therapeutics
189	Lemoine	Vitreous Opacities
191	Leopold	Advances in Ophthalmic Therapy
198	Lloyd	Diseases of the Cornea
200	Lubkin	Psychosomatic Aspects of Ophthalmology
201	Luce	Wound Healing
205	Mann, M.	Hypertensive Vascular Changes in the Fundus
209	McGraw	Contact Lenses
212	Meyer	Surgical Treatment of Glaucoma
214	Morrison	Office Management of Glaucoma
221	Olson	Iritis, Iridocyclitis & Keratitis
247	Spaeth	Plastic Surgery: Practical Aspects
255	Veirs	External Dacryocystorhinostomy

Key W-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
114	Block	Office Practice of Ophthalmology
122	Castroviejo	Corneal Surgery: Results
140	DeVoe	Corneal Dystrophies
148	Fink	Binocular Problems in Routine Refraction
169	Iliff	..... SOLD OUT .....
180	Kestenbaum	Reading Aids for Low Vision
190	Lennon	Therapy of Acute Inflammatory Glaucoma
194	Lewis	External Diseases
210	McGuire	Cataract: Management of Patient
213	Miller	Corneal Diseases
216	Murrah	Aids for Subnormal Vision
219	Ogle	Stereopsis: Present Concept
223	Paulson	Lighting for Comfortable and Accurate Seeing
228	Posner	Glaucomatocyclitic Crises
230	Prewitt	External Eye Diseases Associated with Allergy
231	Quereau	Physiology of Ocular Movements
232	Randolph	Advanced Glaucoma
233	Rizzuti	Tumors of the Lids and Ocular Adnexa
235	Rudolph & Schlaegel	Chemotherapy
239	Scheie	Surgery for Congenital Glaucoma
241	Shipman	Scleral Resection
244	Smith, B.	Orbital Fractures
259	Wise	Retinal Vascular Disease

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Thursday

Key Th-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
115	Bonaccolto	Enucleation Techniques
120	Cassady	Dacryocystitis and Lacrimal Drainage
132	Cowen	.....SOLD OUT.....
134	Cusick	Ptosis
142	Dixon	Indirect Ophthalmoscopy
159	Haas	Congenital Glaucoma
162	Harley	Lesions of 3rd, 4th & 6th Cranial Nerves
164	Havener	Ocular Melanoma
166	Henderson	Chiasmal Area Lesions
177	Kasper	Dacryocystorhinostomy
185	Kronenberg	Practical Ocular Therapeutics
192	Lepard	Eye Diseases Common to Children
195	Linksz & Tait	Telescopic & Magnifying Lenses
196	Linn	Choice of Glaucoma Operation
203	Macnie	Head Trauma with Ocular Symptoms
211	McGuire	Surgery of Vertical Muscles
215	Mullen	Ophthalmic Emergencies
218	Newell	Refinements in Ophthalmic Surgery
220	Ogle	Binocular Oculomotor Coordination
221	Olson	Iritis, Iridocyclitis & Keratitis
238	Scarney	Slit Lamp Biomicroscopy
240	Schwartz	Eye Changes Associated with Skeletal Disease
243	Simpson	Probing of Nasolacrimal Duct
245	Snydacker	Luxated & Subluxated Lenses
248	Spaeth	Operation for Complicated Ptosis
249	Stauffer	Allergic Conditions of the Eye
252	Theodore	Ocular Therapeutics
253	Vail	Surgery of Senile Cataract

Key Th-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
183	Klien	Clinical Pathology of the Retina
206	Mann, W.	Functional Visual Impairment
209	McGraw	Contact Lenses
212	Meyer	Surgical Treatment of Glaucoma
214	Morrison	.....SOLD OUT.....

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
301	Brewer & Briess	Voice Therapy	2 PERIODS T-1, T-2
302 or 303	Cohen	Nasal Cartilages	2 PERIODS T-2, T-3 or Th-2, Th-3
304 or 305	Conley, Daly & Lenz	Carcinoma of Head & Neck	2 PERIODS T-1, T-2 or W-2, W-3
306	Converse	Nasal Plastic Surgery—Basic	2 PERIODS T-2, T-3
307	Converse	Nasal Plastic Surgery—Advanced	2 PERIODS W-2, W-3
308 or 309	Craft	Nasal Allergy	2 PERIODS T-1, T-2 or W-1, W-2
310 or 311	Fox	Noise in Industry	2 PERIODS W-2, W-3 or Th-2, Th-3
312 or 313	Hansel	Allergy & Medical Otolaryngology	2 PERIODS T-1, T-2 or Th-1, Th-2
314	Harbert	Clinical Audiology	2 PERIODS W-1, W-2
315 or 316	Hardy & Pauls	Clinical Audiology for Young Children	2 PERIODS T-2, T-3 or Th-2, Th-3
317	Hilding	Physiology of Hearing: Relation to Hearing Loss	2 PERIODS T-1, T-2
318	Hinderer & Philpott	External Pyramid Reconstruction	2 PERIODS T-1, T-2
319	House & House	.....SOLD OUT.....	
320	House & House	.....SOLD OUT.....	
321	Kazanjian et al.	Traumatic Injuries of Face	2 PERIODS Th-1, Th-2
322 or 323	Lathrop et al.	Otological Office Problems	2 PERIODS T-1, T-2 or W-1, W-2
324	Lawrence	Sound Conduction in Middle Ear	2 PERIODS T-1, T-2
325	Lindsay	Deafness & Dizziness	2 PERIODS Th-1, Th-2
326 or 327	Mueller et al.	What the Otologist Should Know About Hearing Aids	2 PERIODS W-2, W-3 or Th-2, Th-3
328	Petrillo & Chessen	External Pyramid Reconstruction	2 PERIODS T-2, T-3
329	Reed et al.	Voice Therapy	2 PERIODS W-2, W-3
330	Riggs & Sputh	External Pyramid Reconstruction	2 PERIODS W-1, W-2
331	Saunders	Oropharyngeal Lesions	2 PERIODS T-1, T-2
332 or 333	Seltzer	A Typical Rhinoplasty	2 PERIODS W-1, W-2 or Th-1, Th-2
334	Semenov	Ear, Nose & Throat Therapeutics	2 PERIODS Th-1, Th-2
335	von Leden & Moore	Organic Voice Problems	2 PERIODS W-2, W-3
336 or 337	Walsh	What Can Be Done for Deafness	2 PERIODS T-1, T-2 or Th-1, Th-2
338 or 339	Work	Techniques in Wide Field Laryngectomy	2 PERIODS T-2, T-3 or W-2, W-3

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Tuesday

Key T-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
407	Boies	Neurological Disorders
409	Bradley	Sudden Deafness
421	Dolowitz	Adrenal Steroids as Anti-inflammatory Agents
427	Ferguson	Pediatric Bronchography
431	Gardner	Practical Voice Therapy
435	Goodhill	.....SOLD OUT.....
444	Harris	Nasal Polypi
448	Hilsinger	Vascular Headaches
449	Holinger & Johnston	Bronchoscopic Techniques
458	Kos	Stapedial Mobilization
459	Kraus	Adventures in Space: Otolaryngic Aspects
474	Morrison	Children's Injuries
484	Rabbett & Bellucci	Submucous Resection of the Nasal Septum
487	Ronis	Sinus Surgery
501	Suehs	Secretory Otitis Media
507	Van Alyea	Management of Sinusitis

Key T-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
419	Dickinson	Bone Grafts
428	Fowler	Facial Paralysis and Tics
443	Harkins	Office Management of Allergic Patients
453	Jordan	Nasal Fractures
471	McMahon	Treatment of Sinusitis
475	Myers	Surgery of Chronic Otitis Media
478	Ogura	Laryngectomy and Neck Dissection
479	Ogura & Birenboim	..... CANCELLED .....
485	Reger	Practical Office Audiometry
488	Ryan	Headache
502	Tabb	Maxillectomy: Surgical Technique

Key T-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
401	Alexander	The Adenoid Problem
402	Altmann	Tympanoplasty
403	Anderson	Rhinoplasty: Practical Considerations
405	Becker	Plastic Surgery for Protruding Ears
414	Cody	Eustachian Tube
418	DeWeese	Problem of the Dizzy Patient
423	Erich	Fractures of Facial Bones
426	Feldman	Office Hearing Testing of Young Children
430	Furstenberg	Management of Nasal Obstruction
432	Glorig	The Otologist and the Noise Problem
438	Grandon	Pulsion Diverticulum of the Hypopharynx
445	Harvey	Roentgenograms of Sinuses, Mastoids, & Chest
454	Juers	Preservation of Hearing in Surgery
457	Kobrak	Treatment of Middle Ear Deafness
461	Lempert	Temporal Bone Surgery
464	Limarzi	Blood Disturbances
473	Missal	Skin Testing
476	Neivert	Surgery of Nasal Vault
489	Samter	Steroids in Otolaryngology
503	Tato	Tympanoplasty: Functional Examination

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Wednesday

Key W-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
404	Baker	Chronic Cough in Children
406	Bellucci	Surgery of Stapes & Oval Window
416	Dean	Practical Neuro-otolaryngology
420	Dixon	Lesions of the Oral Cavity
422	Dougherty	Adrenal Cortical Steroid Hormones
434	Goldman	Vasomotor Rhinitis
435	Goodhill	Personal Techniques in Stapes Mobilization
437	Graham & Dill	Advanced Audiologic Techniques
439	Guilford & Wright	Permeatal Otologic Surgery
446	Hilger	The Injured Malar Bone
448	Hilsinger	Vascular Headaches
451	House	.....SOLD OUT.....
458	Kos	Stapedial Mobilization
460	Lederer	Otolaryngologic Misadventures
471	McMahon	Treatment of Sinusitis
472	McNally	Labyrinthine Tests
474	Morrison	Children's Injuries
491	Sellers	Frontal Sinusitis: Acute & Chronic Infections
493	Shambaugh	Otosclerosis: Selection of Therapy
509	Williams	Surgical Exposure of Base of Nose, Maxillary Spine & Pyriform Aperture
510	Wynn	External Nasal Growths

Key W-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
415	Crispell	Allergy in Children
424	Farrior	Fenestration Operation
428	Fowler	Facial Paralysis and Tics
440	Hale	Voice Therapy
452	Jones	Allergic Rhinitis
456	Kemler	Bilateral Thyrotomy for Carcinoma of Larynx
462	Lepper	Antibiotics in Otolaryngology
463	Lewy	Direct Laryngoscopy
467	Lynch	Suspension Laryngoscopy
477	Norris	Partial Laryngectomy
482	Perlman	Fluid in the Middle Ear
486	Rinkel	Food Allergy
495	Simonton	Nasal Polyps
506	Tremble	Practical Therapeutics in Office Practice

Key W-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
410	Brodnitz	The Actor & Singer in ENT Practice
412	Canfield	Speech Audiometry
413	Clerf	Causes of Hoarseness
414	Cody	Eustachian Tube
418	DeWeese	Problem of the Dizzy Patient
423	Erich	Fractures of Facial Bones
431	Gardner	Practical Voice Therapy
438	Grandon	Pulsion Diverticulum of the Hypopharynx
441	Hallberg	Severe Nosebleed
442	Hampsey	Sinusitis in Children
455	Kastein	Disorders of Communication in Children
461	Lempert	Temporal Bone Surgery
465	Loch	Septum Deviations
466	Lubart	Complications in Rhinoplasty
469	McGovern	Facial Nerve Diseases
480	Pastore	Lump in the Throat
496	Skolnik	Electrodiagnosis of Diseases of Facial Nerve
497	Slaughter	Unilateral Tonsillectomy
504	Tato	Tympanoplasty

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Thursday

Key Th-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
405	Becker	Plastic Surgery for Protruding Ears
406	Bellucci	Surgery of Stapes & Oval Window
407	Boies	Neurological Disorders
420	Dixon	Lesions of the Oral Cavity
434	Goldman	Vasomotor Rhinitis
437	Graham & Dill	Advanced Audiologic Techniques
441	Hallberg	Severe Nosebleed
447	Hilger	Acute Nasal Injuries
454	Juers	Preservation of Hearing in Surgery
460	Lederer	Otolaryngologic Misadventures
468	Maxwell	Tumors of the Parotid Glands
470	McLaurin	Treatment of External Otitis
472	McNally	Labyrinthine Tests
490	Sellers	Office Practice of Otolaryngology
505	Tato	External Frontal Sinus Surgery
508	Weaver	Tumors of the Face
510	Wynn	External Nasal Growths
511	Levin	Management of Recovery Room

Key Th-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
411	Brodnitz	Vocal Rehabilitation
415	Crispell	Allergy in Children
433	Glorig	Hearing Aid Selection
450	Holinger & Johnston	Pediatric Laryngology
477	Norris	Partial Laryngectomy
478	Ogura	Laryngectomy and Neck Dissection
481	Pearlman	ENT Complaints in Old Age
492	Senturia	Diseases of External Ear
495	Simonton	Nasal Polyps
499	Snitman & Loewy	Surgery of the Neck
500	Som	Hemilaryngectomy
506	Tremble	Practical Therapeutics in Office Practice
507	Van Alyea	Management of Sinusitis

Key Th-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
402	Altmann	Tympanoplasty
408	Bolotow	Recent Advances in Rhinoplasty
412	Canfield	Speech Audiometry
413	Clerf	Causes of Hoarseness
417	Derlacki	Conductive Deafness
425	Farrior	Practicing Practical Otology
430	Furstenberg	Management of Nasal Obstruction
436	Goodhill	.....SOLD OUT.....
467	Lynch	Suspension Laryngoscopy
483	Proetz	Nasal Health & Air Conditioning
493	Shambaugh	Otosclerosis: Selection of Therapy
494	Simmons	Problem of the Bleeding Patient
498	Slaughter	Facial Fractures

News - - - Notes

INTERNATIONAL COLLEGE OF SURGEONS

Surgical problems of the eye, ear, nose, and throat will be covered in a three-day specialty program, September 9-11, which will be a feature of the Twenty-second Annual Congress of the United States and Canadian Sections, International College of Surgeons, at the Palmer House, Chicago, September 8-11, 1957.

Dr. Girolamo Bonaccolto and Dr. Alan A. Scheer, of New York, are co-chairmen of the ophthalmology-otolaryngology program, which is as follows:

Monday, September 9

"The Management of Retinal Detachment," Dr. Harvey E. Thorpe, Pittsburgh

"Treatment of Complications of Herpes Simplex Cornea," Dr. Alson E. Braley, Iowa City, Iowa

"Recent Trends in Ophthalmic Surgery," Dr. Conrad Berens, New York

"Goniotomy," Dr. Samuel J. Meyers, Chicago

Eye Study Club: "Odds and Ends of Ophthalmic Surgery," Dr. Paul C. Craig, Reading, Pa., moderator; Dr. Conrad Berens; Dr. Daniel Kravitz, Brooklyn; Dr. Richard A. Perritt, Chicago

Panel: "Myringoplasty and Tympanoplasty for Improvement of Hearing in Non-otosclerotic Conductive Losses," Dr. George Shambaugh, Jr., Chicago, moderator; Dr. Emery I. Pick, Los Angeles; Dr. William K. Wright, Houston, Texas; Dr. Houston L. Bell, Roanoke, Va.; Dr. Wiley H. Harrison, Chicago

"Present Concepts of the Treatment of Middle Ear Disease," Dr. Heinrich Kobrak, Detroit

"Endoscopic Views of Diseases of the Esophagus," Dr. Paul H. Holinger, Chicago

Tuesday, September 10

Symposium: "Eye Muscles," Dr. Harold W. Brown, New York; Dr. Rudolph Aebli, New York; Dr. Hunter R. Romaine, New York

"Mass Eye Surgery Under Primitive Conditions in Pakistan," Dr. Roland I. Pritikin, Rockford, Ill.

"A Review of Experiences in Keratoplasty in the Philippines," Dr. Jesus V. Tamesis, Manila

"Unsuccessful Iridectomies," Dr. Peter C. Kronfeld, Chicago

Panel: "Poliomyelitis and the Role of the Otolaryngologist in Its Management," Dr. George A. Saxton, Jr., moderator; Dr. Thomas C. Galloway, Chicago; Dr. Albert H. Andrews, Jr., Chicago; Dr. Harold Spies, Chicago; Dr. Richard E. Marcus, Chicago

"Lesions of the Oral Cavity," Dr. Orion H. Stuteville, Chicago

"Nasal Atrophy; Atrophic Rhinitis," Dr. Maurice H. Cottle, Chicago

Wednesday, September 11

Symposium: "Lacrimal Apparatus," Dr. R. M. Fasanella, New Haven; Dr. Girolamo Bonaccolto; Dr. Edmund B. Spaeth, Philadelphia

Panel: "Tumors of the External Ear, Glomus Tumors, Acoustic Neuromas," Dr. John Lindsay, Chicago, moderator; Dr. H. A. Brown, Rochester, Minn.; Dr. Joseph G. Schoolman, Chicago; Dr. Emanuel M. Skolnik, Chicago; Dr. Howard P. House, Los Angeles

"Radical Neck Dissection for Carcinoma of Larynx," Dr. Max Som, New York

"Anesthesia in Cataract Extraction," Dr. Nubar A. Karakashian, Philadelphia

"Safeguards and Aids in Ocular Surgery," Dr. William Rosenberg, Chicago

"Psychodynamics of Rhinoplastic Surgery and Its Pitfalls," Dr. A. Gilbert Silver, New York

Dr. Louis Savitt, Chicago, is secretary of the Section on Ophthalmology and Otolaryngology.

INTERNATIONAL VOICE CONFERENCE

The International Voice Conference, dealing with laryngeal research, physiology, and therapy, was held on the Chicago campus of Northwestern University, under the joint chairmanship of Hans von Leden, M.D., and Paul Moore, Ph.D., with the cooperation of representatives from all universities in the Chicago area.

Delegates from twenty-five foreign countries and the United States represented the leading laryngeal research centers. Thirty-eight scientific papers covered all aspects of laryngeal research. The guest of honor, Dr. Eelco Huizinga, professor of otolaryngology at the University of Groningen in The Netherlands, addressed the formal closing session on the subject, "The Larynx and Voice—Animals and Man."

Also at the last meeting, Mr. W. E. Gould, president of the William and Harriet Gould Foundation, announced an annual award for outstanding research in the field of laryngology. First recipient of this award was Dr. K. Faarborg-Andersen, of Copenhagen, for his electromyographic studies of internal laryngeal muscles in humans.

PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY and NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

Sight-saving and inter-American friendship were twin objectives at the joint session of the Fourth Interim Congress of the Pan-American Association of Ophthalmology and the annual conference of the National Society for the Prevention of Blindness (U. S.), held in New York City, April 7-10, 1957, with headquarters at the Hotel Statler.

More than 1,000 persons devoted to the saving of sight registered for the Congress. Of 540 who attended the Pan-American Association's session, about 400 were practicing ophthalmologists, 74 were residents in ophthalmology, and 71 were visiting ladies.

Sixty-six ophthalmologists represented the Latin American countries. Brazil sent the largest delegation, 19; Mexico was second with 14. Other countries represented were Argentina, Bolivia, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, El Salvador, Jamaica, Nicaragua, Panama, Paraguay, Puerto Rico, Uruguay, and Venezuela. Seven ophthalmologists came from Canada and one from the Virgin Islands. The annual conference of the National Society for the Prevention of Blindness attracted about 500 physicians, nurses, educators, and volunteer workers.

The conference opened with a luncheon meeting attended by more than 200 guests. They were welcomed by the following officials: Dr. Brittain F. Payne, president of the Association; Mr. Mason H. Bigelow, New York, president of the National Society; Dr. Moacyr E. Alvaro, Sao Paulo, Brazil, executive director of the Association; Mayor Robert F. Wagner of the City of New York; Dr. Frank B. Berry, Washington, D. C., Assistant Secretary of Defense for Medical Affairs; and Major General Dan C. Ogle, Washington, D. C., Surgeon General, U. S. Air Force.

Mayor Wagner greeted especially "those who have journeyed from one or another of our sister republics." He continued, "We are grateful for this opportunity to meet with you and share not only the valuable messages of science but to enjoy the equally significant personal friendships which form the firmest basis for true and lasting international understanding."

The Mayor urged that "each physician's office, each clinic, and each hospital become a screening site for early recognition of diseases of the eye," with referral to ophthalmologists for specialized care.

General Ogle spoke of the fraternal understanding and the extension of knowledge developed through the Congress, and pointed out that because of this extension of knowledge, it is becoming less necessary for the afflicted to make long pilgrimages for professional care. Dr. Berry also dwelt upon the opportunities for spreading medical service through international contacts as they have been experienced in the military service.

The Congress received high recognition in a message from President Eisenhower:

"Please give my greetings to the Interim Congress of the Pan-American Association of Ophthalmology and the National Society for the Prevention of Blindness.

"Your common efforts demonstrate the many values of cooperative approach to the solution of problems we face together. With your impressive record of achievement, you are an inspiration to all citizens who are working to promote the health and welfare of the Americas.

"Best wishes for the success of your meeting."

Another significant message came from Helen Keller, who urged the physicians and other workers to "deepen and widen research into the causes of blindness and encourage progress in new methods and techniques."

The opening session was the scene of the presentation of Leslie Dana Gold Medals for the Prevention of Blindness to two distinguished leaders: Mrs. Eleanor Brown Merrill, formerly executive director of the National Society and now living in Baltimore; and Miss Evelyn Carpenter, formerly executive secretary of the Philadelphia Committee for the Prevention of Blindness. The Leslie Dana Medals are awarded by the St. Louis Society for the Blind.

The scientific sessions of the two organizations were held separately. The Pan-American Association held symposiums in the mornings, Monday through Wednesday. These dealt with diseases of the ocular fundus, ocular surgery, and ocular therapy.

Members of the panel discussing diseases of the fundus were Dr. George N. Wise, New York, moderator; Dr. William R. Houston, Mansfield, Ohio; Dr. William H. Havener, Columbus, Ohio, and Dr. Bertha A. Klien, Chicago.

Discussing ocular surgery were Dr. John H. Dunnington, New York, moderator; Dr. Ramon Castroviejo, New York; Dr. Paul A. Chandler, Boston; Dr. Edward W. D. Norton, New York; Dr. Dohrmann K. Pischel, San Francisco; Dr. R. Townley Paton, New York, and Dr. Algernon B. Reese, New York.

The symposium on ocular therapy was presented by Dr. Irving H. Leopold, Philadelphia, moderator; Dr. Isadore Givner, New York; Dr. Dan M. Gordon, New York; Dr. Thomas R. Hedges, Philadelphia; Dr. George A. Hyman, New York, and Dr. Frederick H. Theodore, New York.

Nine Latin American physicians delivered official papers representing their own ophthalmological societies. These were Dr. Honorio Campuzano, Asuncion, Paraguay; Dr. Almiro Pinto de Azeredo, Rio de Janeiro, Brazil; Dr. Jesus Rhode, Caracas, Venezuela; Dr. Guillermo Pico, Santurce, Puerto Rico; Dr. Humberto Escapini, San Salvador, El Salvador; Dr. Fontes Lima, Rio de Janeiro; Dr. Antonio Ros, Mexico City; Dr. Jose Siqueira de Carvalho, Rio de Janeiro, and Dr. Jose Alberto Sena, Buenos Aires, Argentina.

The afternoon sessions on Monday and Tuesday were devoted to free papers, interspersed with motion pictures. Among the speakers were Dr. John Harry King, Jr., Washington, D. C., on "Lamellar Keratoplasty with Preserved Corneas"; Dr. Brian J. Curtin, New York, on "Aniseikonia Following Retinal Detachment"; Dr. H. Saul Sugar, Detroit, on "Coats's Disease"; Dr. Peter H. Ballen, New York, on "Therapeutic and Reconstruction Surgery of Lye Burns"; Dr. Harvey E. Thorpe, Pittsburgh, on "Injuries and Foreign Bodies of the Anterior Chamber Angle"; Dr. Louis Daily, Houston, Texas, on "Iridectomy for Essential Atrophy of the Iris." Among other subjects, the motion pictures dealt with cataract extraction, scleral buckling, surgery of ocular trauma, extraction of subluxated lens with scleral ring, tucking of tendon of superior oblique muscle, and newer procedures in ocular surgery.

The banquet, held Tuesday evening, April 9, was a brilliant event with two eminent speakers: Dr. Howard A. Rusk, director of the famed Institute of Physical Medicine and Rehabilitation at the New York University-Bellevue Medical Center, and associate editor of the New York Times; and Mr. Adolf A. Berle, Jr., New York, former Assistant Secretary of State, former Ambassador to Brazil, and author of recent books in the fields of economics and politics.

Dr. Rusk spoke of the "great surge forward of international communications and the sharing of knowledge among professions." He said, "This Pan-American Association of Ophthalmology is an example. Its members are motivated not only by the professional aspects of giving, receiving and sharing knowledge, but by their recognition that it is only through such activities that the chain of international understanding can be welded. We recognize that in today's world, international diplomacy and the development of international understanding cannot be solely the responsibilities of the diplomat, but they are responsibilities which must

be assumed by all of us in our roles as professional persons and individual citizens."

Mr. Berle emphasized the opportunity which physicians have for the promotion of understanding among people of different countries. Medicine gives them a common platform which politicians do not have, he observed.

Memorial tributes to two prominent members of the Association were delivered during the banquet. Dr. G. Stuart Ramsey, Montreal, spoke of the late Dr. Henri Pichette, Quebec, former vice-president for Canada; and Dr. Daniel Snydacker, Chicago, spoke of the late Dr. Thomas D. Allen, Chicago, former secretary-treasurer for North of Panama.

The social aspects of the Congress were notable. An event of special interest was a reception given by Mayor Robert F. Wagner and Mrs. Wagner at Gracie Mansion, the Mayor's official residence. Among New York ophthalmologists who entertained at private parties were Dr. and Mrs. Payne, Dr. and Mrs. Milton Berliner, Dr. and Mrs. Wendell L. Hughes, Dr. and Mrs. Conrad Berens, Dr. and Mrs. Algernon B. Reese, and Dr. and Mrs. G. Bonaccolto. For the wives of the visiting physicians, a breakfast and fashion show was arranged in a leading department store, B. Altman and Company.

The consensus of those who were so fortunate as to attend this first New York meeting of the Pan-American Association of Ophthalmology was that it was eminently successful. The local committee on arrangements, under the leadership of Dr. Payne, with subcommittees responsible for separate phases of the meeting, devoted unnumbered hours to planning and carrying out the plans.

Chairmen of the committees were Dr. John M. McLean, scientific program; Dr. Wendell L. Hughes, motion pictures; Dr. J. Gordon Cole, surgical clinics; Dr. Gerald Fonda, exhibits; Dr. Elizabeth Constantine, entertainment; Dr. Frank H. Constantine, public relations, and Dr. Girolamo Bonaccolto, housing and registration. In addition, the Committee had the advice and assistance of Dr. Conrad Berens, past president, and Dr. Algernon B. Reese, member of the Executive Committee; Dr. Franklin M. Foote, executive director of the National Society for the Prevention of Blindness, and Mrs. Virginia Smith Boyce, assistant director of the Society, as well as the aid of the New York Convention and Visitors Bureau.

The Association now looks forward to its next assembly, a Caribbean cruise congress scheduled for February 1-14, 1958. More than 400 have already made reservations for the cruise, which will be held aboard the Queen of Bermuda. Dr. William L. Benedict, Rochester, Minnesota, is chairman of the organizing committee. A program of lectures, seminars and motion pictures is being planned for sessions to be held on shipboard. The party will visit San Juan, Puerto Rico; Ciudad Trujillo, Dominican Republic; Kingston, Jamaica; Port-au-Prince, Haiti; and Nassau in the Bahamas. Information about the cruise may be obtained from the travel agent, Mr. Leon V. Arnold, 33 Washington Square West, New York 11.

Dr. J. Wesley McKinney, Memphis, is executive secretary of the Association for countries north of Panama, and Dr. Jorge Balza, Buenos Aires, for South of Panama.

AMERICAN MEDICAL ASSOCIATION

The following awards are among those given at the 1957 Annual Meeting of the American Medical Association.

SECTION ON LARYNGOLOGY, OTOLOGY, AND RHINOLOGY

Certificate of Merit to Julius Lempert, Lempert Institute of Otology, New York, for the exhibit on Modern Temporal Bone Surgery.

Certificate of Merit to Aram Glorig, D. E. Wheeler, and H. P. House, Subcommittee on Noise in Industry, American Academy of Ophthalmology and Otolaryngology, for the exhibit on Your Ear and Noise.

Honorable Mention to William T. K. Bryan and Marian P. Bryan, Washington University School of Medicine, St. Louis, for the exhibit on Cellular Pathology in Diseases of the Ear, Nose, and Throat.

SECTION ON OPHTHALMOLOGY

Certificate of Merit to Algernon B. Reese and Bradley R. Straatsma, Institute of Ophthalmology of the Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York.

Certificate of Merit to David Volk, Western Reserve University School of Medicine, Cleveland, for the exhibit on Conoid Ophthalmic Lenses: An Original Development in Subnormal Vision Aids. Dr. Volk, a 1957 candidate for fellowship in the American Academy of Ophthalmology and Otolaryngology, was also given a special award of $250 by the Section on Ophthalmology for his exhibit.

SECTION ON OPHTHALMOLOGY A.M.A.

The annual scientific session of the Section on Ophthalmology, American Medical Association, was held in New York City, June 5-7, 1957. An audience of 500 persons was in attendance throughout the meeting.

Distinguished foreign guests were Prof. J. Francois, of Ghent, Belgium, and Mr. Frank Law, of London, England.

The Knapp Medal was awarded to Goodwin M. Breinin and Joseph Moldaver for their paper "Electromyography of the Extraocular Muscles," which was presented before the Section in 1955.

The Prize Medal in Ophthalmology was awarded to William L. Benedict.

The $250 prize was awarded to James E. Bennett and Arby L. Bailey for their paper "A Surgical Approach to Total Xerophthalmia Through Transplantation of the Parotid Duct," judged on the basis of presentation and originality.

The following officers were elected: Dohrmann K. Pischel, chairman; Ralph W. Danielson, vice-chairman; Harold G. Scheie, secretary; Ralph O. Rychener, delegate; Frank W. Newell, representative to Scientific Exhibit.

AMERICAN RHINOLOGIC SOCIETY

The Third Annual Meeting of the American Rhinologic Society will be held at the Palmer House, Chicago, on Friday and Saturday, October 18 and 19, 1957; the Clinical Session will be held at the Illinois Masonic Hospital, October 20-22.

The first session will follow the meeting of the American Society of Ophthalmologic and Otolaryngologic Allergy. This session will begin at 2 p.m. on Friday, and will be an instructors' seminar which basically will cover most of the material presented by members of the Society in the Academy instruction courses.

Saturday morning, Dr. Thomas F. Dougherty, Salt Lake City, will present "Corticosteroids in Rhinology." This will be followed by the following papers: "Anesthesia in Rhinology: General and Local," Dr. John Adriani, New Orleans; "Techniques of Extensive Nasal Septum Surgery," Dr. Maurice H. Cottle, Chicago; "Use of Cultured and Preserved Bone in Rhinology," Dr. E. J. Tucker, Houston.

THE SOCIETY OF MILITARY OPHTHALMOLOGISTS AND THE SOCIETY OF MILITARY OTOLARYNGOLOGISTS

The Society of Military Ophthalmologists and the Society of Military Otolaryngologists will hold their annual joint dinner meeting during the time of the American Academy of Ophthalmology and Otolaryngology meeting in Chicago in October.

Cocktails and dinner will be served in a private dining room of the Palmer House Hotel at 6:30 p.m. on Tuesday, October 15, 1957. All members, ophthalmologists and otolaryngologists on active duty or retired, are invited to attend.

Reservations may be made at the time of registration for the Academy Convention. Other information may be obtained from Major Stanley H. Bear, 3810th USAF Hospital, Maxwell Air Force Base, Alabama.

ILLINOIS

Dr. Derrick T. Vail, professor and chairman of the Department of Ophthalmology, Northwestern University Medical School, was honored on July 2, 1957, by members of the Oxford Ophthalmological Congress at Oxford, England, for his outstanding contributions to the field of ophthalmology.

A world-wide organization, the Oxford Ophthalmological Congress was founded in 1909 by Robert Doyne, a famous British ophthalmologist. Each year an international council invites an outstanding eye surgeon to deliver the Doyne Memorial Lecture and to receive the Doyne

Medal. Dr. Vail is the second American in the history of the Congress to be so honored.

Dr. Vail's address concerned the zonule membrane, an important factor in cataract surgery. The lecture was given at Keble College of Oxford University.

During World War II, Dr. Vail was in charge of all eye work in the European theater of operations. He has received the Legion of Merit, the Bronze Star Medal, the Order of the Crown of Belgium, and the Medal of Gratitude from France. He is an honorary member of the Ophthalmological Society of the United Kingdom and an honorary fellow of the Royal College of Surgeons.

The Twenty-ninth Annual Meeting of the Central Illinois Society of Ophthalmology and Otolaryngology will be held in Springfield, Illinois, on September 27-29, 1957.

Guest speakers for this meeting will be Dr. K. M. Simonton, of the Mayo Clinic, Rochester, Minn., in otolaryngology, and Dr. Charles E. Iliff, Jr., of the Johns Hopkins University, Baltimore, Md., in ophthalmology.

The Society speakers will be Dr. William Hubble, Decatur, in ophthalmology, and Dr. R. E. Knight, Bloomington, in otolaryngology.

The Friday night speaker will be Dr. S. Glidden Baldwin, whose subject will be "Four on Safari in Africa."

NEW YORK

A Seminar on Glaucoma, with particular emphasis on gonioscopy and the study of the anterior angle, will be given at the Brooklyn Eye and Ear Hospital on November 18, 19, and 20, 1957. Ample opportunity for practical instruction in the use of the gonioprism will be given, and material from the glaucoma clinic will be utilized.

The course will be given by Dr. Daniel Kravitz, assisted by Drs. Mortimer A. Lasky, A. Benedict Rizzuti, Abner S. Rosenberg, Nicholas P. Tantillo, and Samuel Zane.

Registration is limited to six (6) ophthalmologists only. Application and the fee of $50 may be addressed to Dr. Daniel Kravitz, Brooklyn Eye and Ear Hospital, 29 Greene Ave., Brooklyn 38, N. Y.

PENNSYLVANIA

The Department of Laryngology and Bronchoesophagology, Temple University School of Medicine, announces two postgraduate courses in bronchoesophagology, to be given under the direction of Dr. Chevalier L. Jackson and Dr. Charles M. Norris. Dates for the courses are January 13-24, 1958, and March 24 to April 4, 1958. The tuition fee for each course is $250.00.

Further information and application blanks may be obtained from Dr. Chevalier L. Jackson, 3401 N. Broad St., Philadelphia 40.

CHILE

The University of Chile has announced a graduate course for ophthalmologists to be presented in 1957-1958. Included in the course will be more than 300 lectures given by 76 professors from the 24 departments in the University with which the Department of Ophthalmology is related. There will also be numerous clinical and surgical meetings, round table discussions, and symposia, in which all of the doctors of the ophthalmological services of Santiago and some from the provinces will discuss the latest advances in ophthalmology. Professors of basic sciences and of other medical specialties will also participate in the symposia.

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OPHTHALMOLOGIST: Board certified and capable of establishing and heading the department. Replies should be directed to Dr. Merrill O. Hines, Ochsner Clinic, 3503 Prytania Street, New Orleans, Louisiana.

ASSOCIATE OPHTHALMOLOGIST wanted. Practice less than ten years old. Certified orthoptic technician; modern equipment; downtown contemporary building in the City of Lakes. Write to Malcolm A. McCannel, M.D., Doctors Bldg., Minneapolis 2.

Listings of positions available should be sent to W. L. Benedict, M.D., 15 Second Street S.W., Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist: diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published only once.

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